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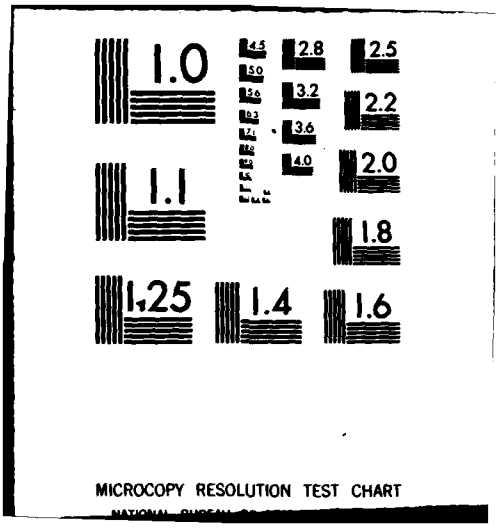
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The USAF E-3A is an airborne warning and control system aircraft powered by four TF33-P-100A turbofan engines. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating on a concrete runup pad for four engine/power configurations. Near-field data are reported for nine locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure

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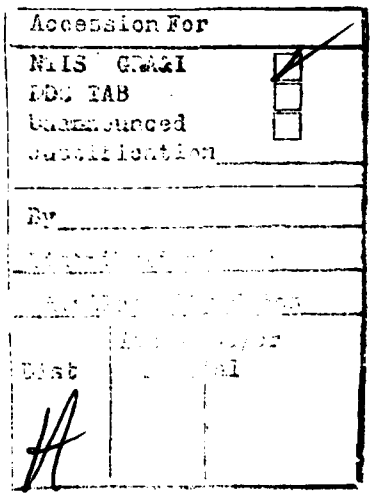
levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723107, Technology to Define and Assess Environmental Quality of Noise from AF Operations and 72310807 Crew Safety in Operational Noise Environments.

The author gratefully acknowledges Mr. John Cole for his assitance in preparing this report, Mr. Robert Lee and Mr. Jerry Speakman for their assitance in acquiring the raw data, Mr. Henry Mohlman, Mr. Keith Kettler and Mr. Fred Lampley of the University of Dayton for assitance in the mechanics of data processing and preparation of the graphics and Mrs. Peggy Massie for assistance in typing and report preparation.



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INTRODUCTION

The USAF E-3A is an airborne warning and control system aircraft powered by four TF33-P-100A turbofan engines. The aircraft was manufactured by the Boeing Company and the engines by United Aircraft, Pratt and Whitney Division. The commercial version of the aircraft is the Boeing 707.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the E-3A aircraft.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15 C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. *Refer to Volumes 1 and 2* (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

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1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application,* AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975

2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Nonstandard Meteorological Conditions on Far-Field Noise,* AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975

NEAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near-field noise data on the E-3A aircraft during ground runup operations of its turbofan engines. For these tests, the aircraft was located on a concrete taxiway at Wright-Patterson AFB with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all of the noise samples on magnetic tape. During analysis of each sample, he determined the root-mean square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location.

Figure 1 shows the nine numbered near-field locations where ground crews are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations in the near-field are difficult since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test conditions A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the E-3A aircraft at the nine ground crew locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures given in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.

TABLE 1

MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENT

E-3A Aircraft, Ground Runup, Wright-Patterson AFB, OH
29 June 1978
Tail # 61604

Ground Crew Location

1	Engine Start
2	Engine Start
3	Engine Start
4	Engine Start
5	Air Hose Removal
6	Electric Disconnect
7	Wheel Chock Pull
8	Wing Marshall
9	Trim Adjustment

Aircraft Engine Operation

A	Engine #4 Idle
B	Engine #3 and 4 Idle
C	Engine #2, 3 and 4 Idle
D	All Engines Idle
E	All Engines 85% RPM

Meteorology

Temperature	31 C
Bar Pressure	0.742 m Hg
Rel Humidity	53 %
Wind — Speed	4.1 m/sec (8 kts)
— Direction	350 Deg

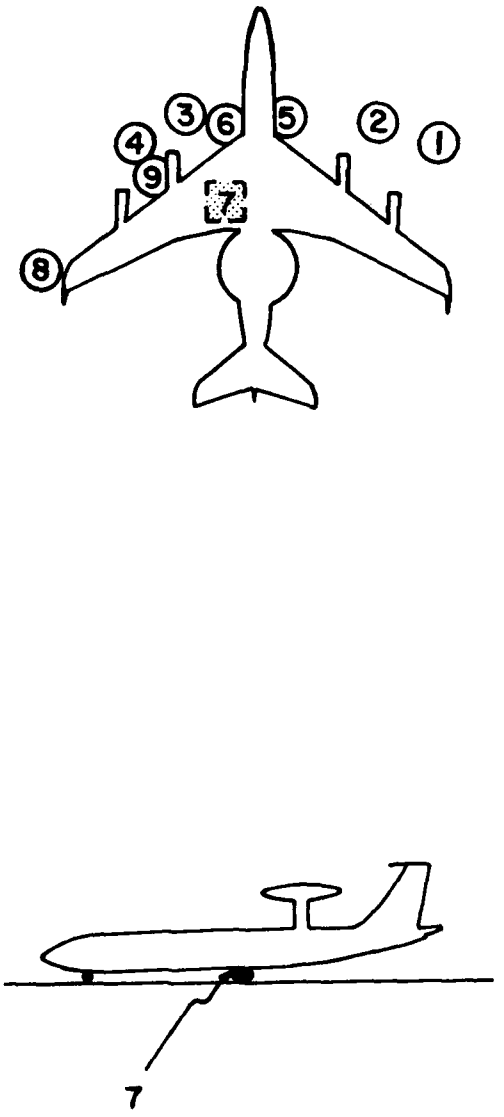


Figure 1. Near-Field Measurement Locations on Taxiway 16 at Wright-Patterson AFB OH

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near and far-field data during a one hour test period, thus keeping similar meteorological conditions throughout the test. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 75 meter radius semicircle used in surveying the TF33-P-100A engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through the inboard engines' exhaust-nozzle exits. The ground runup area did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

Table 4 provides cockpit readouts of some engine characteristics (% RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of the source where the sound wavefronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand-held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the E-3A aircraft in a standard format.

Figure 4 and Table 6 present two basic acoustic measures, the acoustic power level and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of frequency. The directivity index is a standard acoustical engineering measure which describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

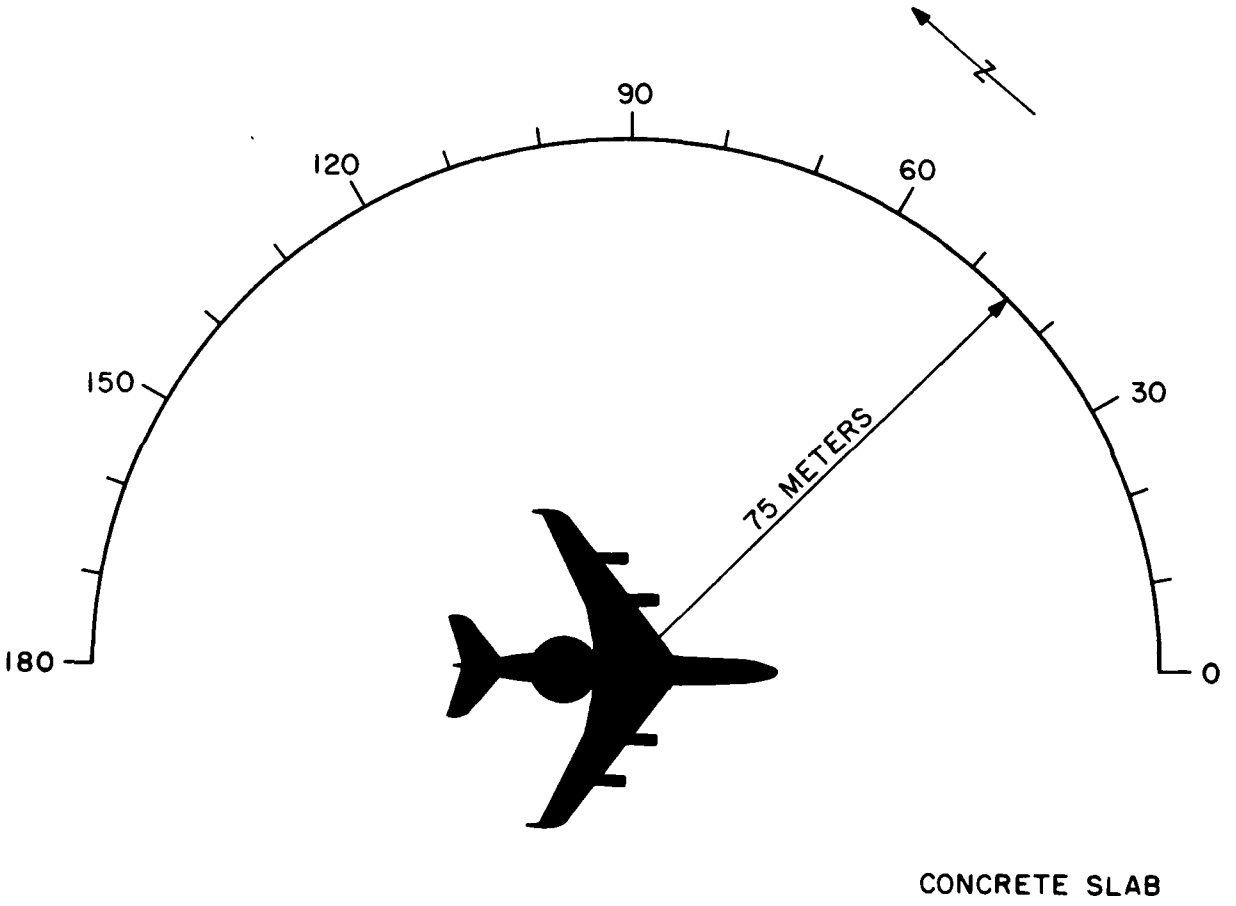


Figure 2. Far-Field Measurement Locations at Wright-Patterson AFB OH

Estimates of noise characteristics for intermediate power settings (e.g., 88% engine) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 5 through 11 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

No data are presented from 150 through 180 degree locations for the 70% RPM nor from 160 through 180 degree locations for the 85% RPM and take off-rated thrust engine setting because of turbulent air flow behind the aircraft. Typical A-weighted levels for these angles are 10 to 20 dBA below the last measurement location.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low (e.g., Table 5 at idle power).

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

TABLE: 2 MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND

IDENTIFICATION:
OMEGA 3.2
TEST 78-008-001
RUN 01

18 JAN 79

PAGE F1

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
GROUND CREW
NEAR FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/B	3/C	4/D	5/D	6/D	7/D	8/D	8/E	9/D
25	74<	78	76	78	88	88	93	81	106	89
31.5	76	78	80	81	89	87	93	84	109	94
40	77	81	80	81	90	89	93	86	113	91
50	80	84	84	83	89	90	94	87	115	93
63	85	87	87	88	92	92	95	90	116	95
80	81	85	84	87	89	91	93	88	117	93
100	80	83	86	87	90	92	96	88	117	92
125	82	85	81	86	84	85	92	81	117	90
160	80	85	82	86	86	85	89	84	119	90
200	83	84	84	85	87	86	94	87	119	93
250	84	84	84	86	89	87	94	90	118	94
315	87	87	86	91	90	89	96	88	119	95
400	91	90	89	97	92	91	96	88	119	99
500	99	98	98	102	97	96	98	90	119	102
630	98	102	95	99	98	95	99	93	119	103
800	98	100	98	100	97	97	101	93	119	107
1000	100	102	100	104	99	97	103	95	117	111
1250	100	103	99	101	99	98	102	95	117	108
1600	100	102	100	104	99	98	106	98	116	109
2000	103	105	103	106	106	104	112	107	115	115
2500	100	103	99	101	103	99	102	94	117	107
3150	101	102	99	102	99	97	102	96	121	107
4000	98	100	96	100	98	97	102	96	116	108
5000	98	99	96	98	96	96	100	94	113	106
6300	95	96	93	96	97	96	100	94	117	104
8000	94	96	93	95	95	95	99	95	118	104
10000	92	94	90	92	93	92	96	92	116	102
OVERALL	111	113	110	113	111	110	116	110	132	120

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 2 MEASURED SOUND PRESSURE LEVEL (DB) OCTAVE BAND

IDENTIFICATION:
OMEGA 3.2
TEST 78-006-001
RUN 01
18 JAN 79
PAGE J1

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
GROUND CREW
NEAR FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/B	3/C	4/D	5/D	6/D	7/D	8/D	8/E	9/D
31.5	80	84	84	85	94	93	98	89	115	96
63	87	90	90	91	95	96	99	93	121	98
125	85	89	88	91	92	94	98	90	123	95
250	90	90	90	93	93	92	100	93	123	99
500	102	104	100	104	101	99	102	96	124	106
1000	104	107	104	107	103	102	107	99	122	114
2000	106	108	106	109	108	106	113	107	121	116
4000	104	105	102	105	102	102	106	100	123	112
8000	99	100	97	100	100	99	103	98	122	108
OVERALL	111	113	110	113	111	110	116	110	132	120

TABLE: 3 MEASURES OF HUMAN NOISE EXPOSURE

IDENTIFICATION:
OMEGA 3.2
TEST 78-008-001
RUN 01
18 JAN 79
PAGE H1

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
GROUND CREW
NEAR FIELD NOISE LEVELS

OPERATION:

	LOCATION/CONDITION									
	1/A	2/B	3/C	4/D	5/D	6/D	7/D	8/D	8/E	9/D
HAZARD/PROTECTION										
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR										
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR										
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)										
NO PROTECTION										
OASLC	110	112	109	113	111	109	115	109	131	119
OASLA	111	113	110	113	111	110	116	110	129	120
T	4.5	3.2	5	3.2	4.5	5	P	5	P	P
MINIMUM QPL EAR MUFFS										
OASLA*	83	85	82	86	84	83	88	82	107	92
T	571	404	679	339	480	571	240	679	9	120
AMERICAN OPTICAL 1700 EAR MUFFS										
OASLA*	77	79	76	80	78	77	82	76	102	86
T	960	960	960	960	960	960	679	960	21	339
V-51R EAR PLUGS										
OASLA*	83	85	82	86	83	81	87	80	103	92
T	571	404	679	339	571	807	285	960	18	120
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS										
OASLA*	70	72	69	72	69	68	73	67	90	79
T	960	960	960	960	960	960	960	960	170	960
H-133 GROUND COMMUNICATION UNIT										
OASLA*	84	86	83	86	84	82	88	82	103	92
T	480	339	571	339	480	679	240	679	18	120
COMMUNICATION										
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)										
PSIL	104	106	103	107	104	102	108	101	122	112
ANNOYANCE										
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)										
TONE CORRECTION (C IN DB)										
PNLT	125	125	125	127	126	125	132	127	146	136
C	1	0	2	1	2	2	3	4	2	2

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

TABLE 4

TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

E-3A Aircraft, Ground Runups, Wright-Patterson AFB, OH
29 June 1978
Tail # 61604

Aircraft Engine Operation

Idle	Engines No. 2 and 3
	28 % RPM (Fan Speed)
	320 C EGT (Exhaust Gas Temperature)
	1.05 EPR (Engine Pressure Ratio)
	1050 LBS/HR FF (Fuel Flow)
70% RPM	Engine No. 3, Engine 2 Idle
	70 % RPM
	350 C EGT
	1.225 EPR
	4100 LBS/HR FF
85% RPM	Engine No. 3, Engine 2 Idle
	95 % RPM
	405 C EGT
	1.47 EPR
	6750 LBS/HR FF
95% RPM	Engine No. 3
	Engine No. 2 85% RPM, Others Idle
	85 % RPM
	500 C EGT
	1.84 EPR
	10,000 LBS/HR FF

Meteorology

Temperature	31 C
Bar Pressure	0.742 m Hg
Rel Humidity	53 %
Wind — Speed	4.1 m/sec (8 kts)
— Direction	

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 2

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25																			
31.5	65<	65<	65<	65<	67<	66<	65<	67<	68<	65<	66<	66<	68<	68<	66<	62<	64<	64<	63<
40	64<	64<	63<	66<	67<	66<	66<	66<	67<	67<	66<	67<	68<	68<	65<	64<	63<		
50	67<	65<	66<	67<	67<	68<	69<	69<	68<	69<	67<	67<	69<	70<	64<	66<	65<	64<	
63	69<	68<	70<	69<	70<	69<	69<	70<	70<	71<	69<	70<	72<	70<	69<	68<	71<	68<	
80	68<			67<	67<	67<	68<	67<				68<	72<	69<	69<		67<		
100												67<	71<	68<	69<				
125	68<	67<	67<	67<	67<	66<	66<	65<	64<	64<		64<	67<	66<	67<	65<	66<	64<	
160	70<	68<	66<	68<	67<	66<	67<	65<	65<	66<	64<	67<	67<	67<	69<	66<	68<	69<	65<
200	71	71	70<	69<	70<	70	71	69<	67<	68<	66<	70	70	70	72	69<	69<	69<	65<
250	74	74	72	73	73	72	73	70<	69<	69<	67<	69<	71<	73	72	69<	68<	68<	66<
315	75	74	73	74	75	74	74	70	69	67	66<	71	69	72	73	69	69	70	67
400	76	76	76	75	75	74	74	72	70	68	68	69	68	71	69	68	69	67	65<
500	82	82	83	80	80	79	78	76	72	72	69	72	70	72	71	70	70	69	66<
630	81	81	82	79	80	78	76	74	72	72	71	72	71	71	71	71	70	70	67<
800	81	80	81	79	79	77	76	74	73	72	72	73	73	75	74	72	71	72	68
1000	82	81	84	82	81	79	79	78	76	76	74	77	76	80	76	74	72	74	70
1250	79	78	80	79	80	78	77	76	73	72	72	74	74	76	74	71	72	73	68
1600	82	81	82	81	82	82	80	79	74	73	74	78	80	77	74	71	71	73	70
2000	88	87	86	85	89	87	87	88	84	82	80	85	87	82	80	76	77	80	76
2500	84	81	81	82	83	80	80	77	74	73	71	73	75	79	73	70	70	72	68
3150	86	84	83	84	83	81	80	77	75	74	73	74	75	78	76	72	72	73	69
4000	81	80	80	81	81	80	79	76	73	73	70	73	74	74	72	69	70	71	67
5000	78	77	77	79	78	75	75	72	70	70	70	71	72	73	70	66	68	69	66
6300	75	75	74	75	75	73	73	70	68	68	68	71	71	71	68	64	66	69	65
8000	73	72	71	73	73	70	70	67	66	66	68	69	71	71	67	64	65	66	63
10000	68	67	67	68	68	66	65	63	62	62	63	66	67	65	63	59	63	64	63
OVERALL	94	93	93	92	94	92	91	90	87	86	85	88	90	89	86	84	84	85	81

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE 5: MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 2

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	74<	75<	74<	73<	72<	74<	76	78	78	79	78	79	82	85	86				
31.5	75	76	75	75	75	78	79	79	80	82	82	82	85	89	90				
40	77	77	75	78	81	80	82	81	83	84	86	86	88	92	92				
50	79	78	77	80	83	82	83	83	85	86	87	88	91	93	93				
63	79	79	82	82	84	84	85	85	86	88	89	90	93	96	95				
80	80	80	82	83	85	85	86	87	89	89	91	93	95	97	96				
100	81	82	82	84	85	86	86	86	88	89	90	92	95	97	97				
125	80	82	83	84	85	85	85	87	88	88	90	91	93	97	96				
160	82	83	84	85	86	85	86	86	88	89	91	91	93	96	95				
200	84	84	86	85	85	85	86	86	87	88	89	90	93	94	91				
250	85	87	86	85	86	86	87	86	86	86	88	89	91	93	91				
315	84	85	84	83	85	86	86	85	87	88	88	89	92	92	91				
400	83	83	84	85	86	86	85	85	86	86	87	87	90	90	87				
500	84	83	84	85	86	85	85	85	86	86	86	87	89	89	87				
630	84	84	86	85	86	85	85	85	85	86	86	86	87	87	85				
800	86	85	87	86	87	86	86	86	85	86	87	87	87	87	84				
1000	86	86	88	87	88	88	87	87	85	86	86	86	86	85	83				
1250	87	89	93	92	92	91	89	88	86	87	88	88	87	85	83				
1600	90	91	96	94	94	93	92	91	89	88	89	88	88	84	82				
2000	91	93	94	92	93	93	93	91	89	89	90	90	88	83	81				
2500	96	98	98	103	102	99	102	104	103	103	101	102	98	91	88				
3150	93	94	96	97	97	95	97	98	96	96	96	96	94	89	85				
4000	91	92	94	93	94	93	95	91	91	90	92	91	88	84	80				
5000	92	94	94	96	96	96	98	95	96	96	99	97	95	88	84				
6300	89	90	92	93	93	93	94	92	93	92	93	93	91	86	83				
8000	89	90	92	92	93	93	94	94	96	94	96	96	92	87	83				
10000	85	85	87	88	89	88	90	90	92	90	92	92	90	86	82				
OVERALL	102	104	105	106	106	105	106	107	107	106	107	107	106	106	105				

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5 — MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 2

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	77	80	80	79	78	83	84	82	82	83	83	85	88	92	94	92			
31.5	80	82	79	81	81	84	83	83	84	87	89	89	92	97	100	96			
40	80	82	80	82	84	84	84	85	89	90	91	93	94	100	101	99			
50	82	83	83	86	87	86	86	87	90	91	93	95	99	100	102	98			
63	84	83	85	86	86	87	88	90	90	92	94	97	101	106	105	99			
80	85	85	88	89	90	88	89	92	93	94	96	100	104	108	106	97			
100	87	88	88	92	91	91	92	92	94	95	97	101	106	109	107	96			
125	87	88	88	89	90	90	91	92	94	95	98	102	107	109	107	95			
160	88	88	90	91	92	90	92	93	96	96	98	102	107	108	107	92			
200	89	90	92	92	92	91	92	93	94	95	97	101	105	106	104	89			
250	91	93	92	92	92	92	92	93	93	94	96	100	105	104	103	86			
315	89	90	89	90	92	92	91	91	93	94	96	100	104	102	100	85			
400	88	88	89	92	93	92	93	92	94	93	96	99	102	99	97	82			
500	86	87	88	91	93	91	90	91	93	93	95	98	101	98	95	81			
630	86	87	88	90	91	92	90	92	93	94	96	97	98	97	94	80			
800	86	86	88	90	91	90	91	90	93	93	95	97	98	97	93	79			
1000	87	85	88	90	90	90	91	92	92	91	93	97	96	95	92	78			
1250	88	87	89	94	93	93	91	94	97	93	94	96	95	93	91	78			
1600	97	91	101	99	97	95	94	95	96	96	93	96	94	92	90	78			
2000	95	94	95	97	94	94	93	94	93	92	92	94	93	91	89	77			
2500	96	94	97	97	96	99	98	101	98	99	98	101	94	91	89	78			
3150	101	100	105	105	106	105	106	109	108	107	107	109	100	95	93	84			
4000	93	93	94	95	95	95	93	95	96	95	95	97	93	90	87	76			
5000	92	91	93	94	94	94	92	94	95	94	93	95	91	87	85	74			
6300	92	92	95	95	97	97	96	98	100	99	97	100	94	89	87	77			
8000	89	90	91	92	93	93	92	94	96	97	95	97	93	89	87	77			
10000	86	86	89	90	90	92	91	93	95	96	93	97	91	87	85	73			
OVERALL	106	105	108	109	109	109	109	111	111	111	111	114	115	117	115	106			

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 2

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	82	83	82	82	83	85	86	86	87	88	87	90	96	99	100	100			
31.5	84	86	84	84	85	88	88	88	91	91	91	94	97	103	106	105			
40	87	86	85	87	86	89	88	91	94	94	95	98	101	107	107	108			
50	88	87	87	90	90	89	91	93	95	97	98	100	106	109	110	106			
63	92	88	90	90	90	91	93	93	95	98	100	101	106	112	111	108			
80	93	91	93	93	92	93	94	95	98	99	100	105	110	115	114	108			
100	94	94	94	95	95	95	98	99	100	101	103	106	113	117	115	108			
125	93	94	95	95	95	96	96	99	100	102	104	108	115	119	116	108			
160	95	96	98	99	98	97	97	99	100	102	105	108	116	119	116	110			
200	97	96	98	97	97	97	97	99	101	102	105	108	114	117	115	108			
250	97	99	97	98	98	99	98	98	100	102	106	108	112	115	115	109			
315	95	96	95	97	97	98	98	99	100	102	106	108	113	114	113	107			
400	93	94	95	97	98	98	98	98	100	100	104	107	111	111	111	104			
500	92	93	94	96	97	96	97	98	99	100	103	106	109	110	109	100			
630	93	92	94	95	96	96	96	98	99	100	103	105	107	108	107	98			
800	94	92	94	95	96	96	96	98	98	99	103	106	107	107	106	97			
1000	93	92	94	94	95	95	95	96	97	98	102	104	105	105	103	95			
1250	93	92	95	94	95	97	98	97	97	98	101	104	103	103	101	94			
1600	100	99	101	97	99	101	100	99	100	98	102	103	102	102	100	94			
2000	99	96	98	98	99	99	98	97	98	97	100	102	101	100	98	91			
2500	100	99	98	96	97	97	99	99	98	96	99	100	99	99	96	91			
3150	106	104	107	100	102	104	106	106	105	101	105	105	99	99	96	91			
4000	99	96	98	97	100	103	102	103	107	104	108	102	97	97	94	89			
5000	95	94	95	92	94	95	96	97	97	95	98	98	96	96	92	88			
6300	97	95	96	93	94	95	96	100	100	96	100	98	95	94	92	87			
8000	94	93	93	90	93	94	95	99	100	96	101	98	95	94	92	88			
10000	91	90	90	88	89	91	92	96	96	93	97	95	92	92	89	85			
OVERALL	111	110	111	109	110	111	112	113	114	114	117	119	123	126	125	119			

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 81
18 SEP 78
PAGE 6

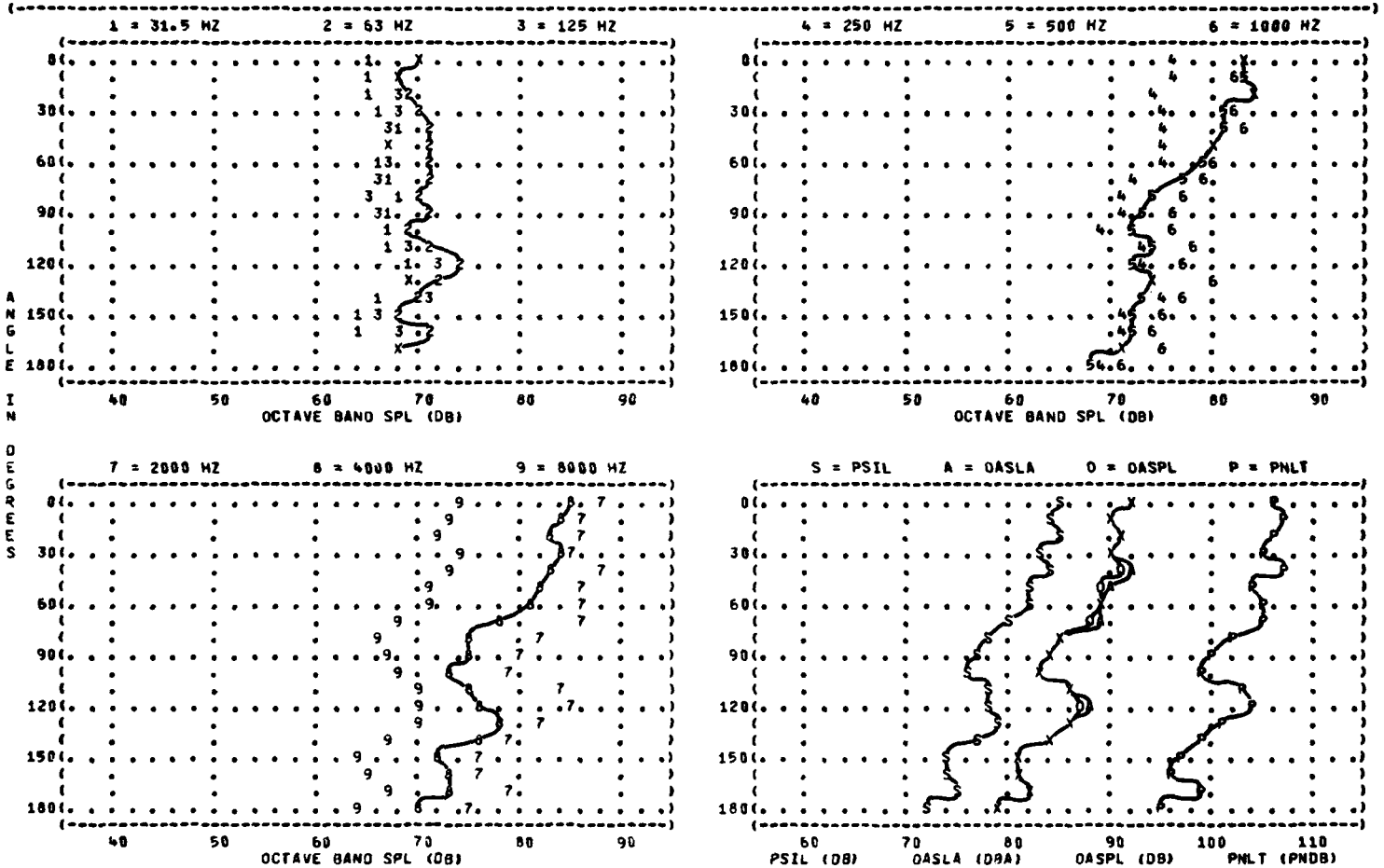


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

IDENTIFICATION:

OMEGA 1.4
TEST 78-006-001
RUN 02
18 SEP 78
PAGE 6

NOISE SOURCE/SUBJECT:

E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:

70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

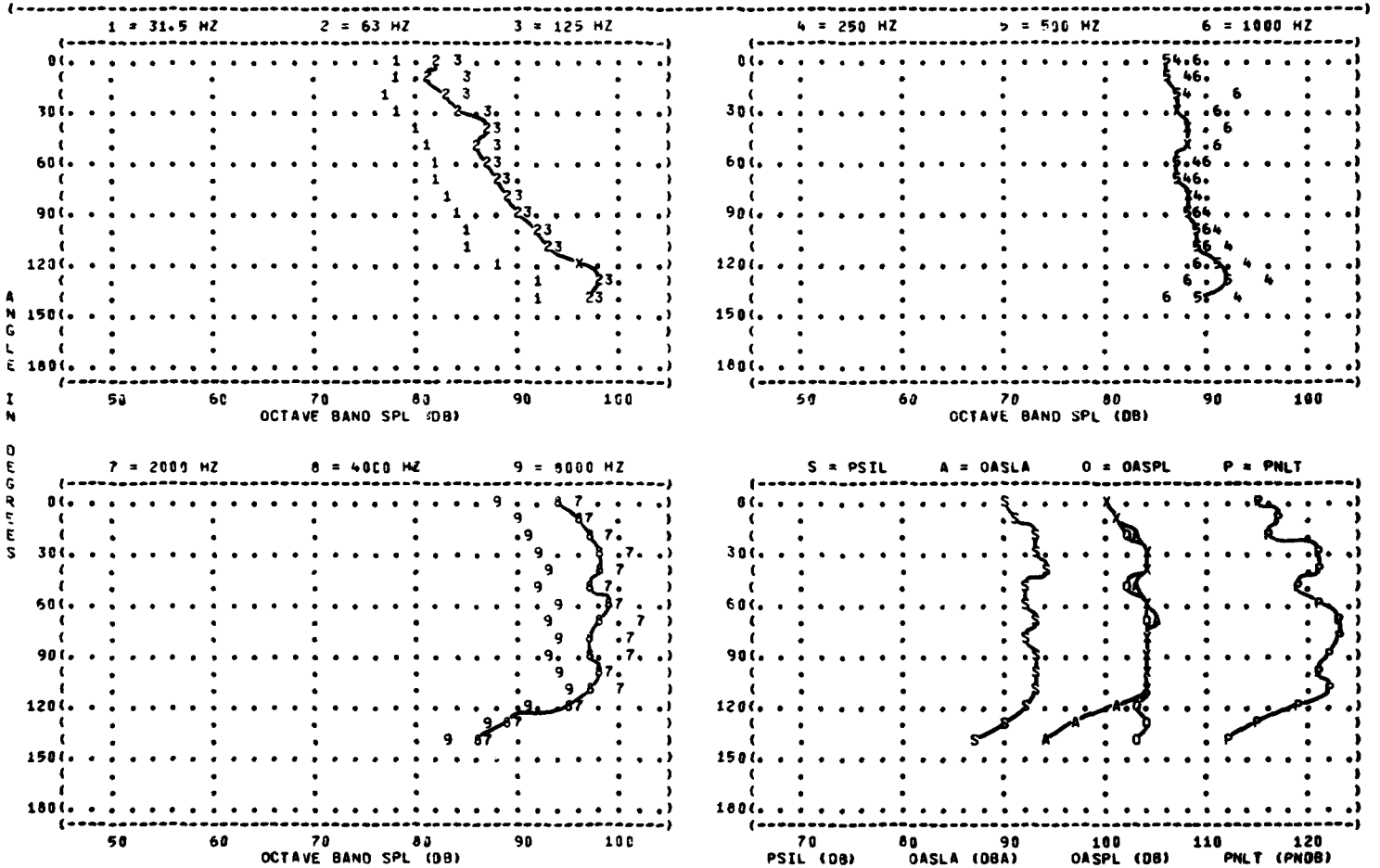


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:

85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4
TEST 78-008-001
RUN 03

18 SEP 78

PAGE 6

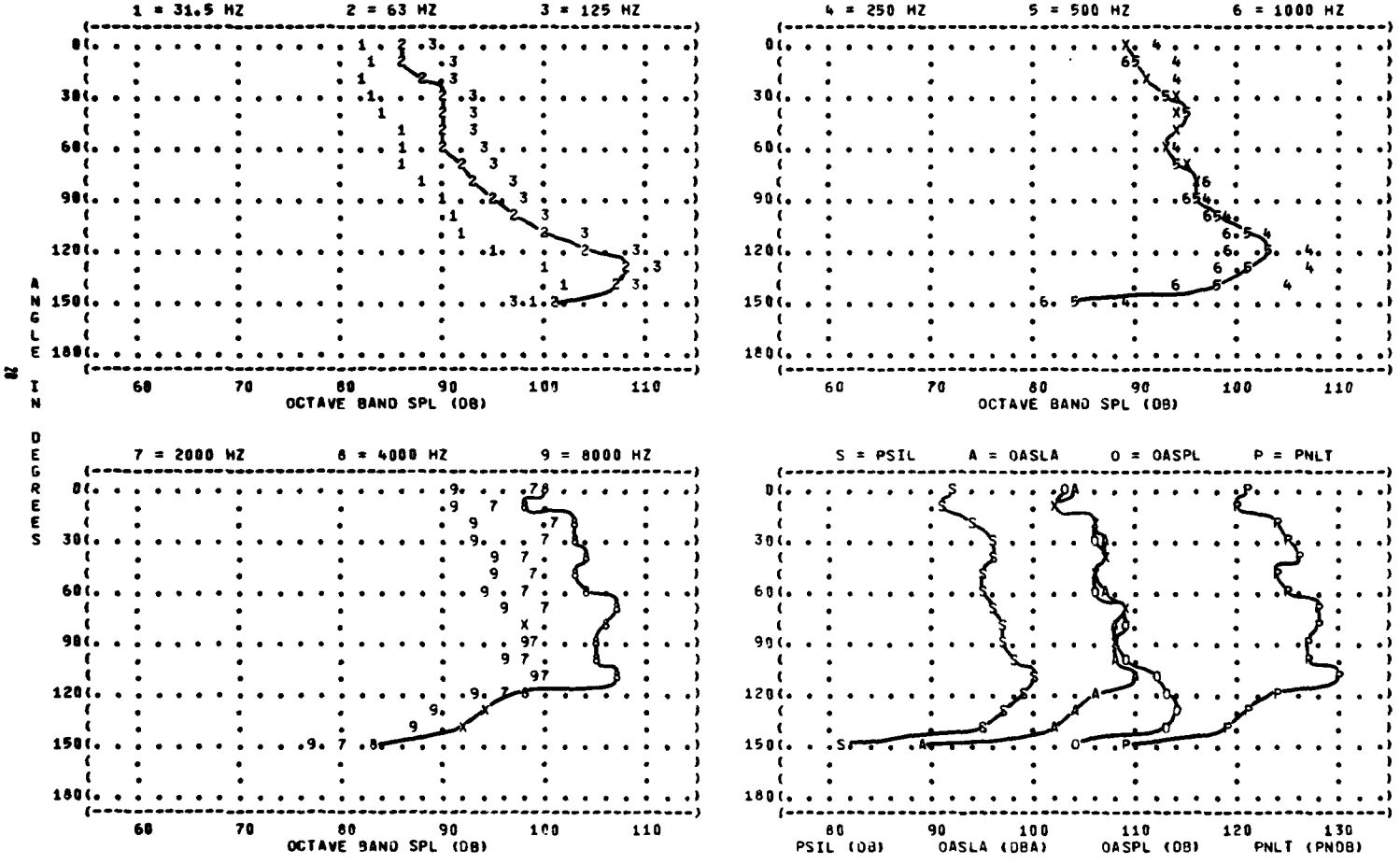


FIGURE 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 6

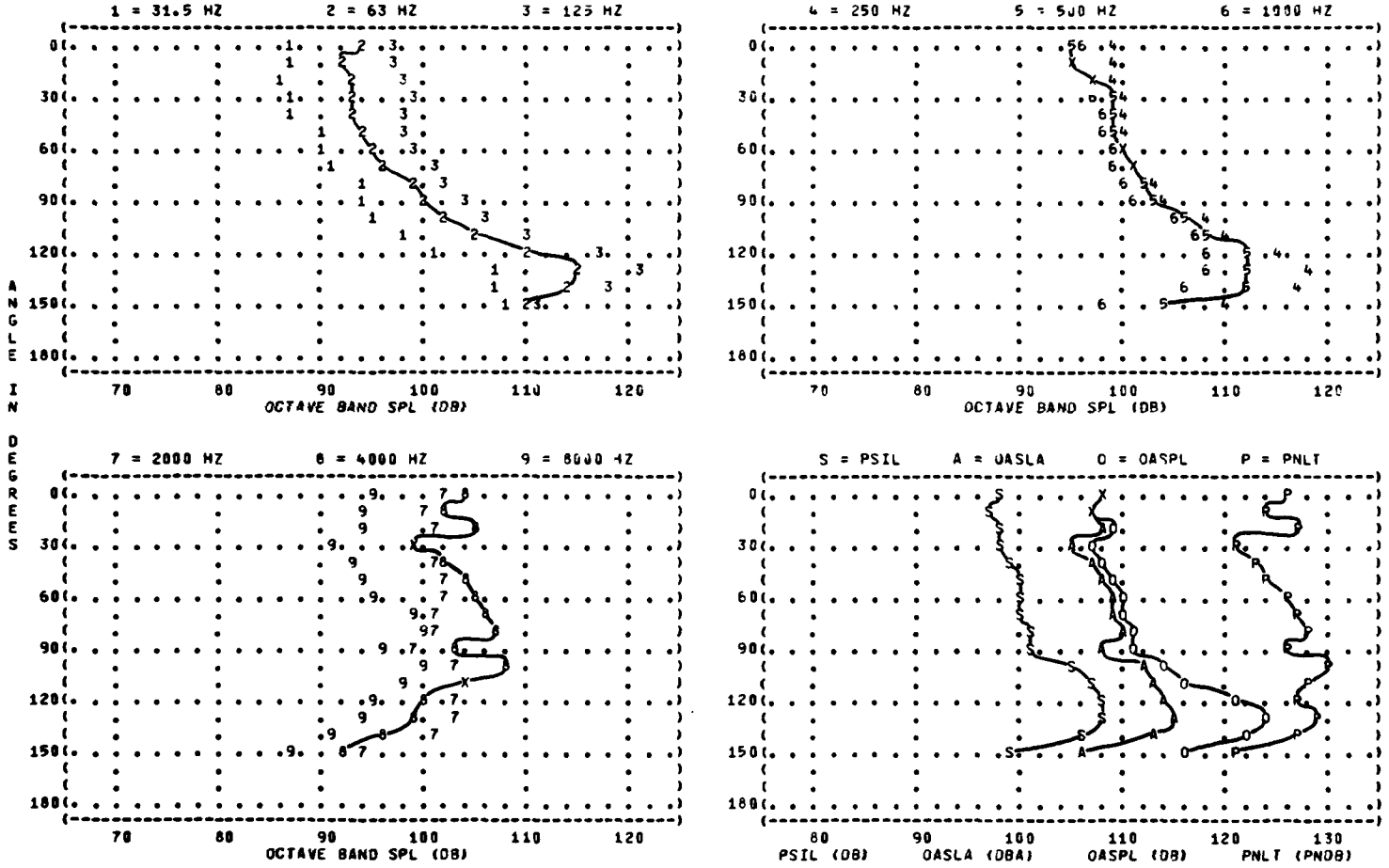


FIGURE: ACOUSTIC POWER LEVEL (PWL)

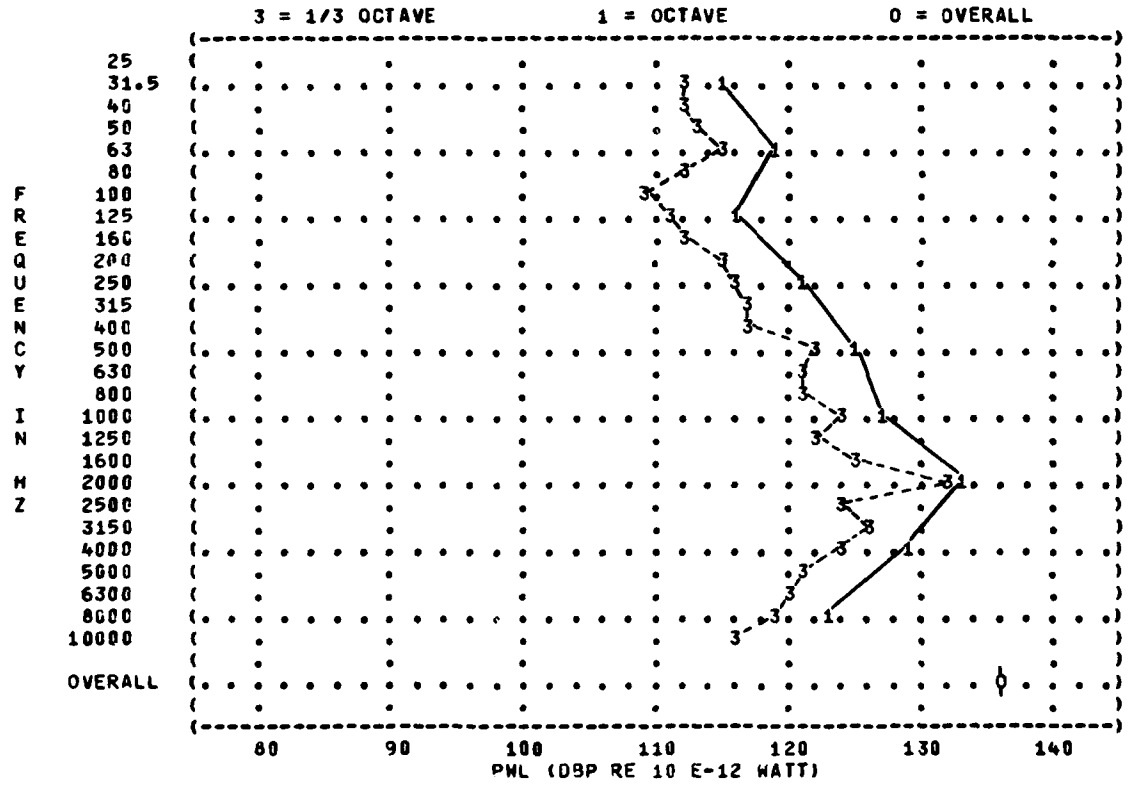
4

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

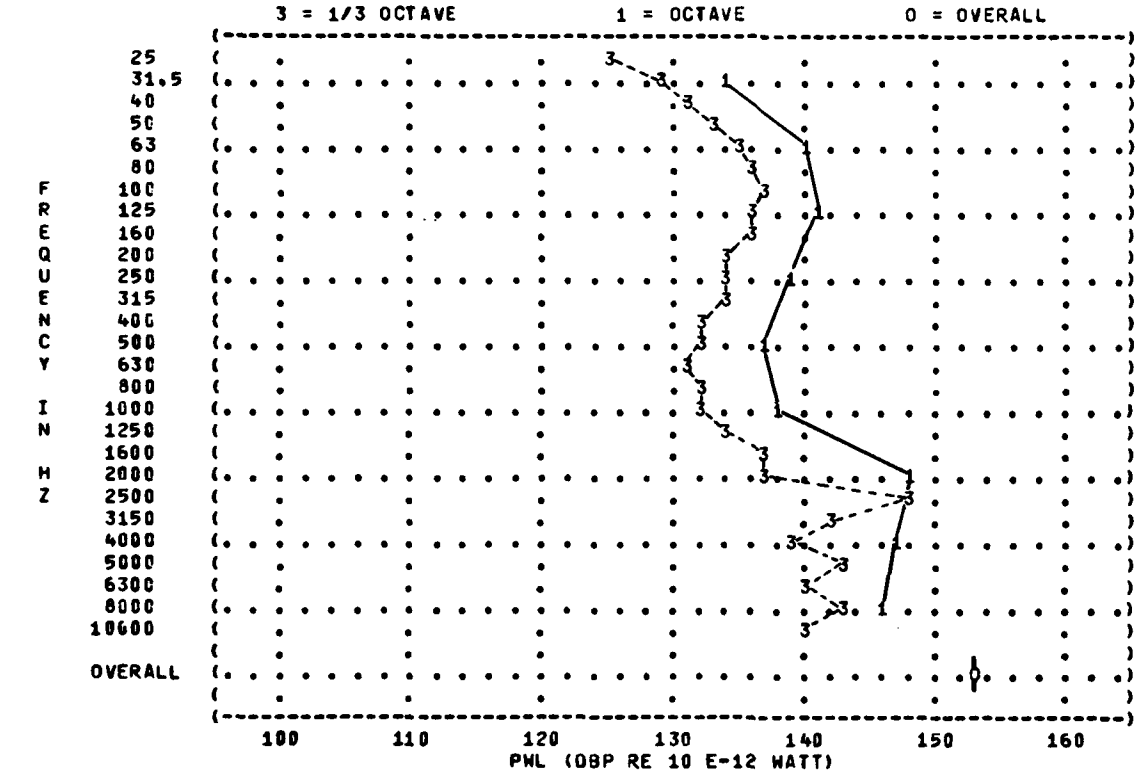
IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
31.5	111.7	114.8
40	111.9	
50	113.4	
63	115.5	118.7
80	112.2	
100	109.0	
125	110.9	115.6
160	112.2	
200	115.1	
250	116.4	121.0
315	117.1	
400	117.5	
500	121.8	125.2
630	121.0	
800	121.4	
1000	124.1	127.4
1250	121.9	
1600	124.5	
2000	131.5	133.8
2500	124.4	
3150	125.7	
4000	124.1	128.8
5000	121.1	
6300	119.6	
8000	118.6	123.0
10000	115.7	
OVERALL		136.1

FIGURE: 4 ACOUSTIC POWER LEVEL (PWL)

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:	IDENTIFICATION:
E-3A AIRCRAFT	70% RPM ENGINE NO.2	TEMP = 31 C	OMEGA 1.4
TF33-P-100A ENGINE	IDLE, ENGINE NO.3	BAR PRESS = .742 M HG	TEST 78-008-001
FAR FIELD NOISE	FREE FLOW	REL HUMID = 53 %	RUN 02
			18 SEP 78
			PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	125.1	
31.5	128.7	133.8
40	131.2	
50	132.9	
63	135.2	139.9
80	136.5	
100	136.6	
125	135.8	140.9
160	135.8	
200	134.4	
250	133.7	138.7
315	133.6	
400	132.2	
500	131.8	136.5
630	131.1	
800	131.6	
1000	131.9	137.6
1250	134.3	
1600	136.6	
2000	136.7	148.2
2500	147.5	
3150	142.3	
4000	138.6	146.6
5000	143.2	
6300	140.2	
8000	142.9	146.1
10000	140.3	
OVERALL		152.9

FIGURE: ACOUSTIC POWER LEVEL (PWL)

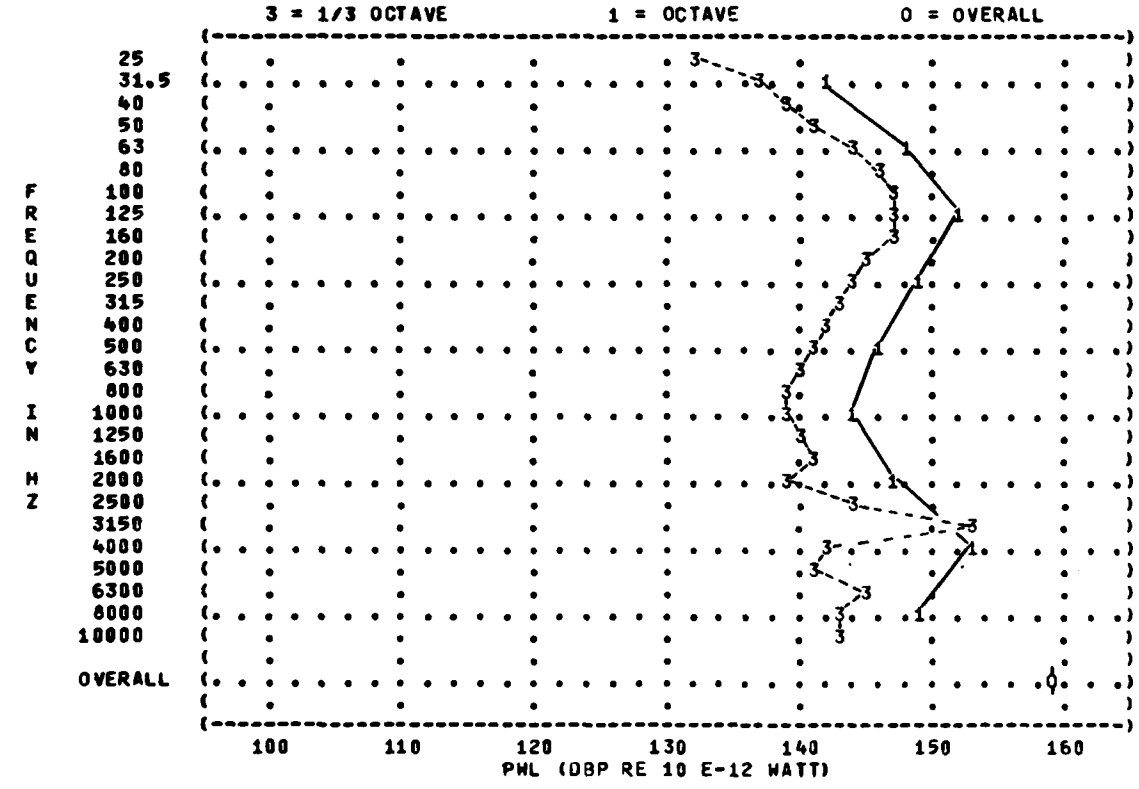
4

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	132.5	
31.5	137.1	141.9
40	139.4	
50	140.7	
63	143.6	148.5
80	145.5	
100	146.9	
125	147.0	151.7
160	146.8	
200	145.1	
250	144.1	148.9
315	143.0	
400	141.8	
500	140.7	145.6
630	139.9	
800	139.4	
1000	138.6	144.0
1250	139.7	
1600	141.3	
2000	139.4	146.9
2500	144.2	
3150	152.8	
4000	141.6	153.4
5000	140.7	
6300	145.1	
8000	143.2	148.8
10000	143.4	
OVERALL		158.5

FIGURE: ACOUSTIC POWER LEVEL (PWL)

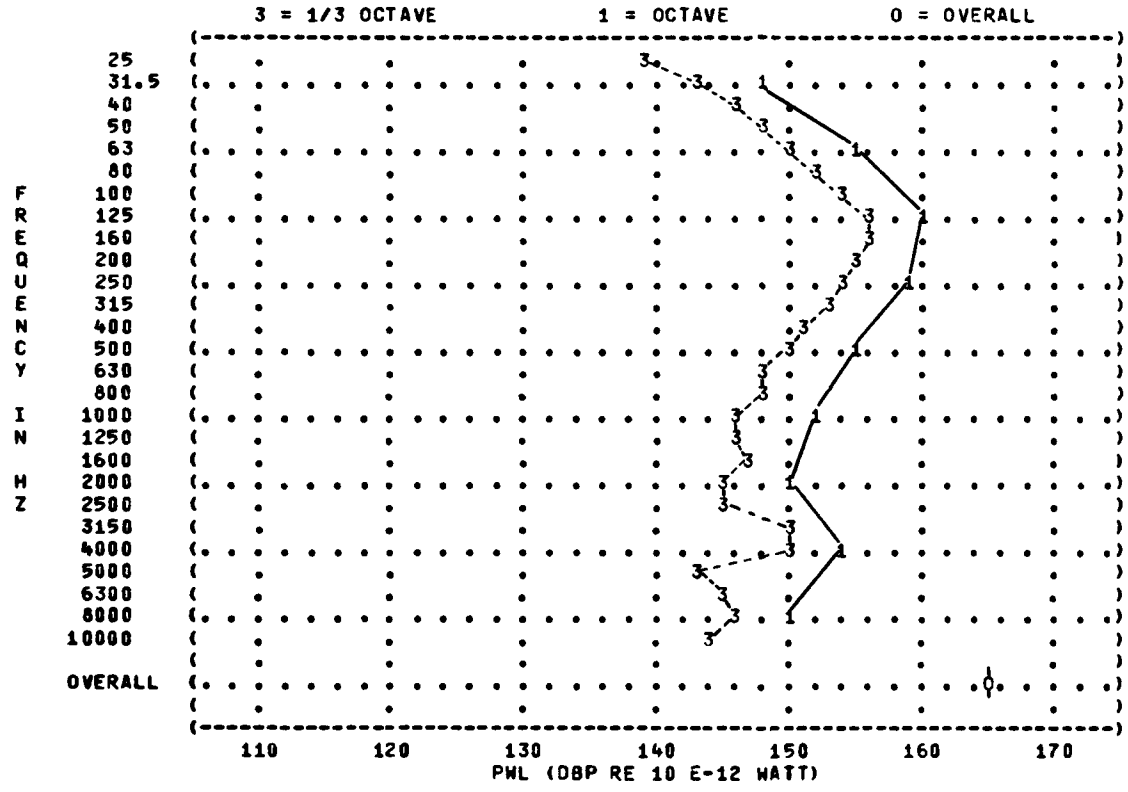
4

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	138.7	
31.5	143.1	148.3
40	146.0	
50	147.8	
63	149.7	155.2
80	152.4	
100	154.1	
125	155.8	160.3
160	156.3	
200	154.9	
250	153.7	158.7
315	153.1	
400	151.2	
500	150.0	154.8
630	148.5	
800	148.2	
1000	146.5	151.7
1250	145.8	
1600	146.6	
2000	145.2	150.4
2500	144.7	
3150	150.4	
4000	150.4	153.8
5000	143.4	
6300	145.3	
8000	146.2	150.0
10000	144.1	
OVERALL	164.9	

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 78-008-001
RUN 01

18 SEP 78

PAGE 4

NOISE SOURCE/SUBJECT:

E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:

IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:

TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25																			
31.5	-1	-1	-1	-1	1	0	-2	0	2	-1	0	0	2	1	0	-4	-2	-2	-3
40	-2	-2	-3	0	1	0	0	0	0	0	0	0	1	2	-1	-2	-3		
50	-1	-3	-2	0	-1	0	1	1	0	1	-1	0	1	2	-4	-1	-3	-4	
63	-1	-2	0	-1	0	-1	-1	0	0	1	-1	0	2	0	-1	-2	2	-2	
80	1			0	1	1	1	0				1	6	3	2		1		
100												4	8	4	5				
125	3	2	2	1	1	0	1	-1	-1	-1		-1	2	1	2	-1	1	-2	
160	3	2	0	1	0	-1	0	-1	-2	-1	-3	1	1	1	2	-1	1	2	-1
200	2	2	0	0	0	1	2	0	-2	-2	-3	1	1	1	2	-1	-1	-1	-4
250	3	3	1	2	2	1	2	-1	-2	-2	-4	-2	0	2	1	-1	-3	-3	-5
315	3	3	2	2	4	3	2	-1	-3	-4	-5	0	-3	0	1	-3	-3	-1	-4
400	4	5	4	4	4	3	2	0	-2	-4	-4	-3	-3	-1	-3	-4	-3	-5	-7
500	6	6	7	4	4	3	2	0	-4	-4	-7	-4	-6	-4	-5	-6	-6	-7	-10
630	6	6	7	3	5	3	1	-2	-3	-3	-4	-4	-4	-4	-4	-4	-5	-6	-8
800	6	4	6	3	4	2	1	-1	-2	-3	-3	-2	-2	0	-2	-4	-5	-4	-7
1000	4	3	6	4	3	1	0	0	-2	-2	-4	-1	-2	2	-2	-4	-6	-4	-8
1250	3	2	4	3	4	2	1	0	-3	-4	-3	-2	-2	0	-1	-5	-4	-3	-7
1600	3	2	3	2	3	4	1	0	-5	-6	-4	-1	2	-2	-4	-7	-7	-5	-8
2000	3	2	1	0	4	2	2	3	-1	-3	-5	0	2	-3	-5	-9	-9	-6	-10
2500	6	3	4	4	6	2	3	-1	-4	-5	-7	-5	-3	1	-5	-8	-8	-5	-9
3150	8	6	4	5	5	3	1	-2	-4	-5	-6	-4	-3	0	-2	-6	-6	-5	-9
4000	5	3	3	5	4	3	3	0	-3	-4	-6	-4	-2	-3	-4	-7	-6	-6	-10
5000	5	4	4	5	4	2	1	-1	-3	-3	-4	-2	-2	0	-3	-7	-5	-4	-8
6300	4	3	3	4	4	2	1	-1	-4	-3	-3	0	0	0	-3	-7	-5	-2	-6
8000	4	3	2	3	3	1	1	-2	-3	-3	-2	0	1	1	-2	-6	-4	-3	-6
10000	3	3	2	3	3	1	1	-2	-3	-3	-2	1	2	0	-2	-6	-2	-1	-2
OCTAVE																			
31.5	-2	-2	-2	-1	1	0	-1	0	1	0	0	0	2	2	-1	-3	-3		
63	-1	-3	-2	0	0	0	0	0	-1	0	-2	0	3	1	0	-3	0	-3	
125	2	1	0	0	0	-1	-1	-2	-2	-2		1	4	2	3	-2	0	0	
250	3	2	1	2	2	2	2	-1	-2	-3	-4	0	-1	1	2	-2	-2	-2	-4
500	6	6	7	4	4	3	2	-1	-3	-4	-5	-4	-5	-3	-4	-5	-5	-6	-9
1000	4	3	5	3	4	1	1	-1	-2	-3	-4	-2	-2	1	-2	-4	-5	-4	-8
2000	3	2	2	1	4	2	2	2	-2	-4	-5	-1	1	-2	-5	-8	-8	-5	-9
4000	6	5	4	5	4	3	2	-1	-4	-4	-6	-4	-3	-1	-3	-7	-6	-5	-9
8000	4	3	2	4	4	2	1	-2	-3	-3	-2	0	1	1	-3	-6	-4	-2	-6
OVERALL	4	3	3	3	4	2	2	1	-2	-3	-5	-1	0	-1	-3	-6	-6	-5	-8

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 78-008-001
RUN 02

18 SEP 78

PAGE 4

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-6	-4	-6	-6	-7	-5	-3	-2	-2	-1	-2	-1	3	6	6				
31.5	-8	-8	-8	-8	-8	-5	-4	-4	-3	-2	-1	-1	1	6	7				
40	-9	-9	-10	-8	-4	-5	-4	-4	-2	-2	0	0	2	6	6				
50	-9	-9	-10	-7	-4	-5	-4	-5	-3	-1	0	1	4	5	5				
63	-11	-11	-8	-8	-6	-6	-4	-4	-4	-2	-1	0	3	7	6				
80	-11	-11	-9	-8	-6	-6	-5	-4	-2	-2	0	2	4	6	5				
100	-11	-9	-9	-7	-6	-5	-5	-6	-3	-2	-1	1	4	6	5				
125	-10	-8	-7	-6	-5	-5	-5	-4	-3	-2	-1	0	3	6	5				
160	-8	-8	-7	-5	-4	-6	-4	-4	-3	-2	1	1	3	6	4				
200	-5	-5	-3	-4	-4	-4	-3	-3	-2	-1	0	1	4	5	2				
250	-3	-1	-2	-3	-2	-3	-2	-2	-2	-2	0	0	3	5	3				
315	-4	-3	-4	-5	-3	-2	-2	-3	-1	0	0	1	4	4	3				
400	-3	-3	-2	-2	0	0	-1	-1	-1	-1	0	1	3	4	1				
500	-2	-3	-2	-1	0	-1	-1	-1	0	0	0	1	3	3	1				
630	-2	-1	1	0	1	0	0	0	-1	0	1	1	2	2	0				
800	0	0	1	1	1	0	0	0	-1	0	1	1	1	1	-1				
1000	0	0	2	1	2	2	1	1	-1	0	0	0	0	-1	-3				
1250	-1	1	5	3	4	2	0	-1	-2	-1	0	0	-1	-3	-5				
1600	-1	0	5	4	4	3	2	1	-2	-2	-1	-2	-3	-6	-8				
2000	1	2	4	2	3	3	3	1	-1	-1	-1	-1	-3	-7	-9				
2500	-5	-3	-3	2	1	-2	1	3	2	2	0	1	-3	-10	-13				
3150	-2	-1	0	2	2	0	2	2	1	1	1	1	-2	-7	-10				
4000	0	1	3	2	3	2	3	0	0	-1	1	0	-3	-7	-11				
5000	-4	-2	-2	0	0	1	2	0	0	1	3	1	-1	-7	-11				
6300	-3	-1	0	1	2	1	2	0	1	0	1	2	-1	-5	-9				
8000	-5	-3	-2	-1	0	-1	1	1	3	1	3	3	-2	-6	-10				
10000	-5	-4	-3	-2	0	-1	0	1	2	1	2	2	0	-3	-7				
OCTAVE																			
31.5	-8	-8	-9	-8	-6	-5	-4	-4	-3	-2	-1	0	2	6	6				
63	-11	-11	-9	-8	-6	-6	-5	-4	-3	-2	-1	1	4	6	5				
125	-9	-8	-8	-6	-5	-5	-5	-4	-3	-2	0	1	3	6	5				
250	-4	-3	-3	-4	-3	-3	-2	-3	-2	-1	0	1	4	5	3				
500	-3	-2	-1	-1	0	-1	-1	-1	-1	0	1	1	3	3	1				
1000	-1	0	3	2	3	2	0	0	-1	0	0	0	0	-1	-3				
2000	-3	-2	-1	2	1	-1	1	3	2	2	0	1	-3	-9	-12				
4000	-2	-1	0	1	1	1	2	1	0	1	2	1	-1	-7	-11				
8000	-4	-3	-1	0	0	0	1	1	2	1	2	2	-1	-5	-9				
OVERALL	-4	-2	-1	1	0	-1	1	1	1	1	1	1	0	0	-1				

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 4

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-10	-7	-7	-8	-9	-4	-3	-5	-5	-4	-4	-2	1	5	7	5			
31.5	-12	-10	-13	-11	-10	-8	-9	-9	-8	-4	-3	-3	1	5	8	5			
40	-14	-12	-14	-12	-10	-10	-10	-9	-5	-4	-3	-1	0	6	7	5			
50	-13	-12	-12	-9	-9	-9	-9	-8	-6	-4	-3	0	4	5	7	3			
63	-15	-15	-13	-12	-12	-11	-10	-9	-8	-6	-4	-1	2	7	7	1			
80	-15	-15	-12	-11	-10	-12	-11	-8	-7	-6	-4	0	4	8	6	-3			
100	-15	-14	-14	-10	-11	-11	-10	-10	-8	-6	-4	-1	5	7	6	-6			
125	-15	-13	-14	-13	-11	-12	-11	-9	-8	-7	-4	0	5	8	5	-7			
160	-14	-13	-12	-11	-10	-11	-10	-9	-5	-6	-3	0	5	7	5	-10			
200	-10	-9	-8	-8	-8	-9	-8	-7	-5	-5	-2	2	5	7	5	-11			
250	-8	-6	-7	-7	-7	-6	-7	-6	-5	-4	-2	1	6	5	4	-13			
315	-9	-8	-8	-7	-6	-6	-6	-7	-4	-3	-1	3	7	5	3	-12			
400	-9	-8	-7	-5	-4	-4	-4	-4	-2	-3	0	3	6	3	1	-14			
500	-9	-8	-7	-4	-2	-4	-5	-4	-2	-2	0	3	6	3	0	-14			
630	-8	-8	-6	-5	-3	-2	-4	-2	-1	0	2	3	4	3	0	-14			
800	-8	-8	-6	-3	-3	-3	-3	-3	-1	-1	2	4	4	3	-1	-14			
1000	-6	-7	-4	-3	-3	-3	-2	-1	-1	-1	1	4	4	2	-1	-15			
1250	-5	-7	-5	0	-1	-1	-2	0	4	0	1	3	1	0	-2	-15			
1600	2	-4	6	4	2	0	-2	0	1	1	-2	0	-1	-3	-5	-18			
2000	2	1	2	4	1	1	0	1	0	-1	-1	1	0	-2	-4	-16			
2500	-2	-4	-1	-1	-1	2	0	4	0	1	1	3	-4	-7	-8	-20			
3150	-5	-6	-1	0	0	-1	0	4	2	1	1	3	-6	-11	-13	-22			
4000	-1	-2	0	1	1	0	-1	1	2	1	1	3	-1	-4	-7	-18			
5000	-1	-2	0	1	1	1	-1	1	2	1	0	2	-2	-6	-8	-19			
6300	-4	-4	-2	-2	0	0	-1	2	3	2	1	3	-3	-8	-9	-19			
8000	-5	-4	-3	-2	-1	-1	-2	0	3	3	1	4	0	-5	-7	-17			
10000	-6	-6	-4	-3	-2	-1	-2	0	2	4	0	4	-2	-6	-8	-19			
OCTAVE																			
31.5	-12	-11	-12	-11	-10	-8	-8	-8	-6	-4	-3	-2	1	6	8	5			
63	-15	-14	-12	-11	-10	-11	-10	-8	-7	-5	-4	-1	3	7	6	0			
125	-14	-13	-13	-11	-11	-11	-10	-9	-7	-6	-4	0	5	7	6	-7			
250	-9	-7	-7	-7	-7	-7	-7	-6	-5	-4	-2	2	6	6	4	-12			
500	-9	-8	-7	-5	-3	-4	-4	-4	-2	-2	1	3	6	3	1	-14			
1000	-6	-7	-5	-2	-2	-2	-2	-1	1	-1	1	3	3	2	-1	-15			
2000	1	-3	3	2	0	1	0	2	0	1	0	2	-2	-4	-6	-18			
4000	-4	-5	-1	0	0	-1	0	3	2	1	1	3	-5	-10	-12	-21			
8000	-5	-5	-2	-2	-1	0	-1	1	3	3	1	3	-2	-6	-8	-19			
OVERALL	-6	-7	-4	-3	-3	-3	-3	-1	-1	-1	-1	2	3	5	3	-6			

TABLE: 6 DIRECTIVITY INDEX (DB)

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 31 C
BAR PRESS = .742 M HG
REL HUMID = 53 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 4

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-11	-10	-11	-11	-10	-8	-7	-7	-6	-5	-6	-3	2	6	6	7			
31.5	-14	-12	-14	-14	-13	-10	-10	-10	-6	-7	-6	-4	0	5	8	7			
40	-14	-15	-15	-14	-14	-11	-12	-9	-7	-6	-6	-2	0	6	6	8			
50	-15	-15	-16	-13	-12	-14	-12	-9	-7	-5	-4	-2	3	6	7	4			
63	-13	-16	-14	-14	-14	-13	-12	-11	-9	-7	-4	-3	2	6	7	3			
80	-14	-16	-14	-14	-15	-14	-13	-12	-9	-8	-7	-2	3	8	7	1			
100	-15	-15	-14	-13	-14	-14	-11	-10	-9	-8	-6	-3	4	8	6	-1			
125	-17	-16	-16	-15	-15	-15	-14	-11	-11	-8	-7	-3	4	8	6	-2			
160	-16	-15	-13	-12	-13	-14	-14	-12	-11	-9	-6	-3	5	8	5	-1			
200	-13	-13	-12	-12	-12	-12	-12	-10	-8	-8	-5	-1	4	8	6	-1			
250	-11	-10	-11	-10	-10	-9	-10	-10	-8	-7	-3	-1	4	6	7	0			
315	-12	-12	-12	-11	-10	-10	-10	-9	-8	-6	-2	1	6	6	5	-1			
400	-13	-12	-11	-8	-8	-8	-7	-7	-5	-5	-1	1	5	6	5	-2			
500	-12	-11	-10	-8	-7	-8	-8	-6	-5	-4	-1	1	5	6	5	-4			
630	-10	-11	-9	-8	-7	-7	-7	-5	-4	-3	0	3	4	5	4	-5			
800	-9	-10	-8	-8	-6	-7	-6	-5	-4	-3	1	4	5	5	3	-5			
1000	-8	-9	-7	-7	-6	-5	-5	-5	-3	-2	1	4	4	4	3	-6			
1250	-6	-7	-4	-5	-5	-3	-2	-3	-2	-2	1	4	4	4	1	-5			
1600	-1	-2	-1	-4	-2	1	-1	-1	-1	-2	2	3	2	2	-1	-7			
2000	0	-3	0	-1	0	0	0	-1	-1	-2	2	3	2	1	-1	-7			
2500	2	1	0	-2	-1	-1	1	1	0	-2	1	2	1	1	-2	-7			
3150	2	1	3	-4	-1	0	2	3	2	-2	2	1	-4	-5	-7	-13			
4000	-4	-7	-5	-6	-3	0	-1	0	4	1	6	-1	-5	-6	-9	-13			
5000	0	-2	0	-4	-2	-1	0	1	2	-1	3	2	0	0	-3	-8			
6300	0	-2	-1	-4	-3	-2	-1	3	3	-1	4	1	-2	-3	-5	-10			
8000	-3	-4	-4	-6	-4	-3	-1	2	4	0	4	2	-2	-3	-5	-9			
10000	-2	-4	-3	-5	-4	-2	-1	3	3	0	4	2	-1	-2	-5	-9			
OCTAVE																			
31.5	-13	-13	-14	-14	-13	-10	-11	-9	-6	-6	-6	-3	1	6	7	7			
63	-14	-16	-14	-14	-14	-14	-12	-11	-9	-7	-5	-3	3	8	7	2			
125	-16	-15	-14	-13	-14	-14	-13	-11	-10	-8	-6	-3	5	8	6	-2			
250	-12	-11	-11	-11	-11	-10	-11	-10	-8	-7	-3	0	5	7	6	-1			
500	-12	-11	-10	-8	-8	-8	-7	-6	-5	-4	-1	2	5	6	5	-3			
1000	-8	-9	-7	-7	-6	-5	-5	-4	-3	-3	1	4	4	4	3	-5			
2000	0	-1	0	-2	-1	0	0	0	0	-2	2	3	2	1	-1	-7			
4000	0	-1	1	-4	-2	0	1	2	3	0	4	1	-4	-5	-7	-12			
8000	-1	-3	-2	-5	-4	-2	-1	3	3	0	4	1	-2	-2	-5	-9			
OVERALL	-8	-9	-8	-10	-9	-8	-7	-6	-5	-6	-2	0	4	7	5	-1			

FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 13

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90

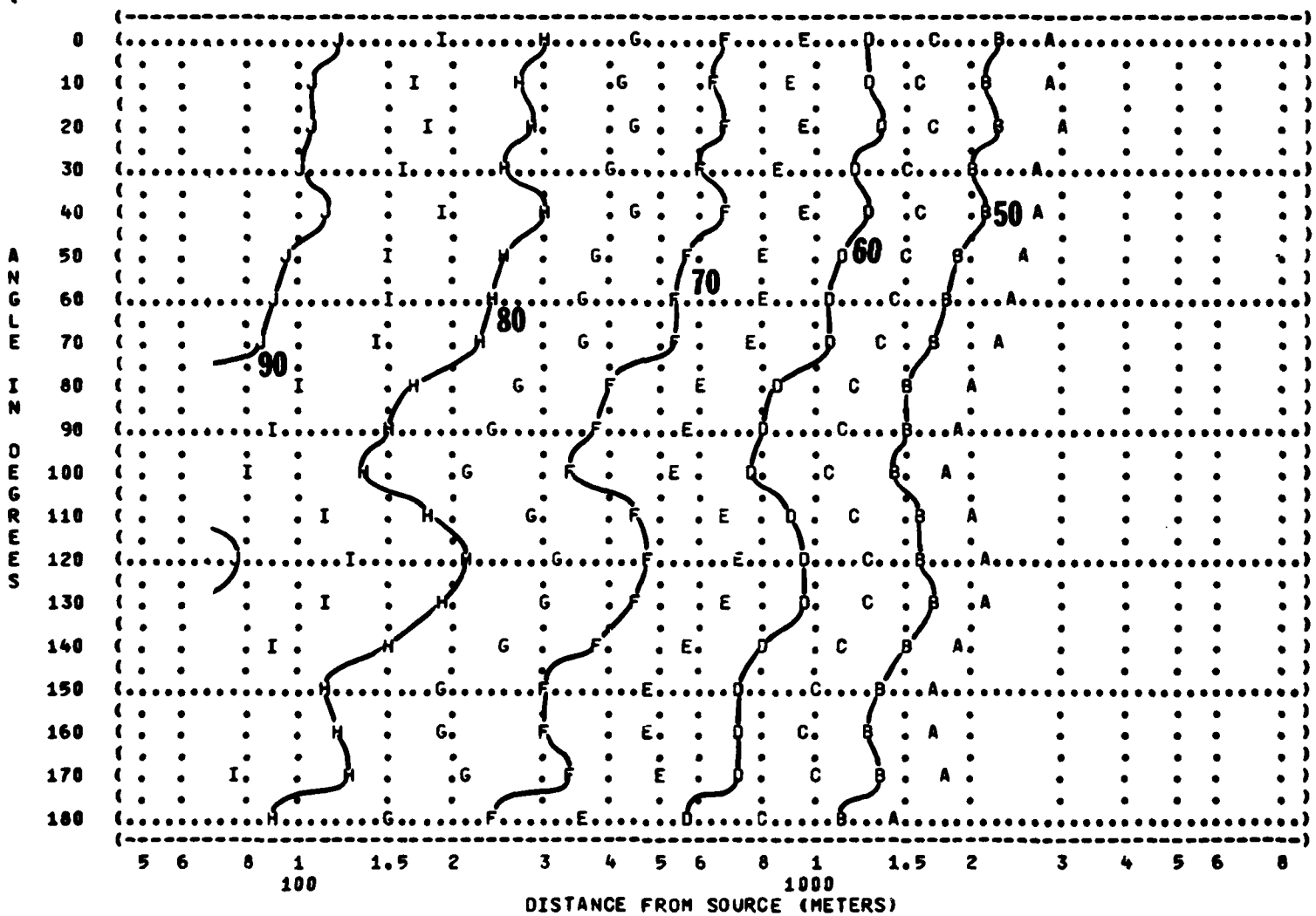


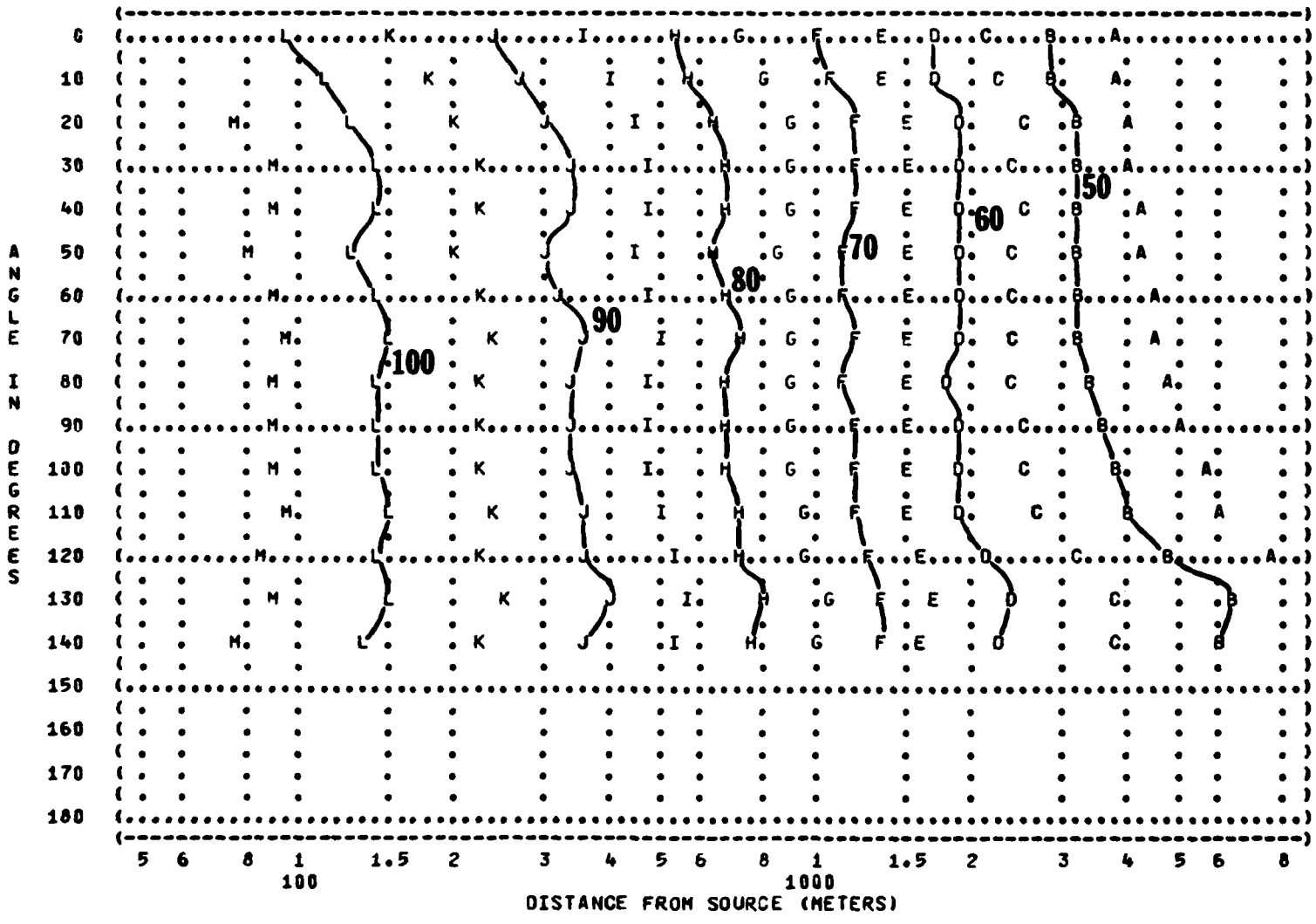
FIGURE 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-001
RUN 02
18 SEP 78
PAGE 13

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

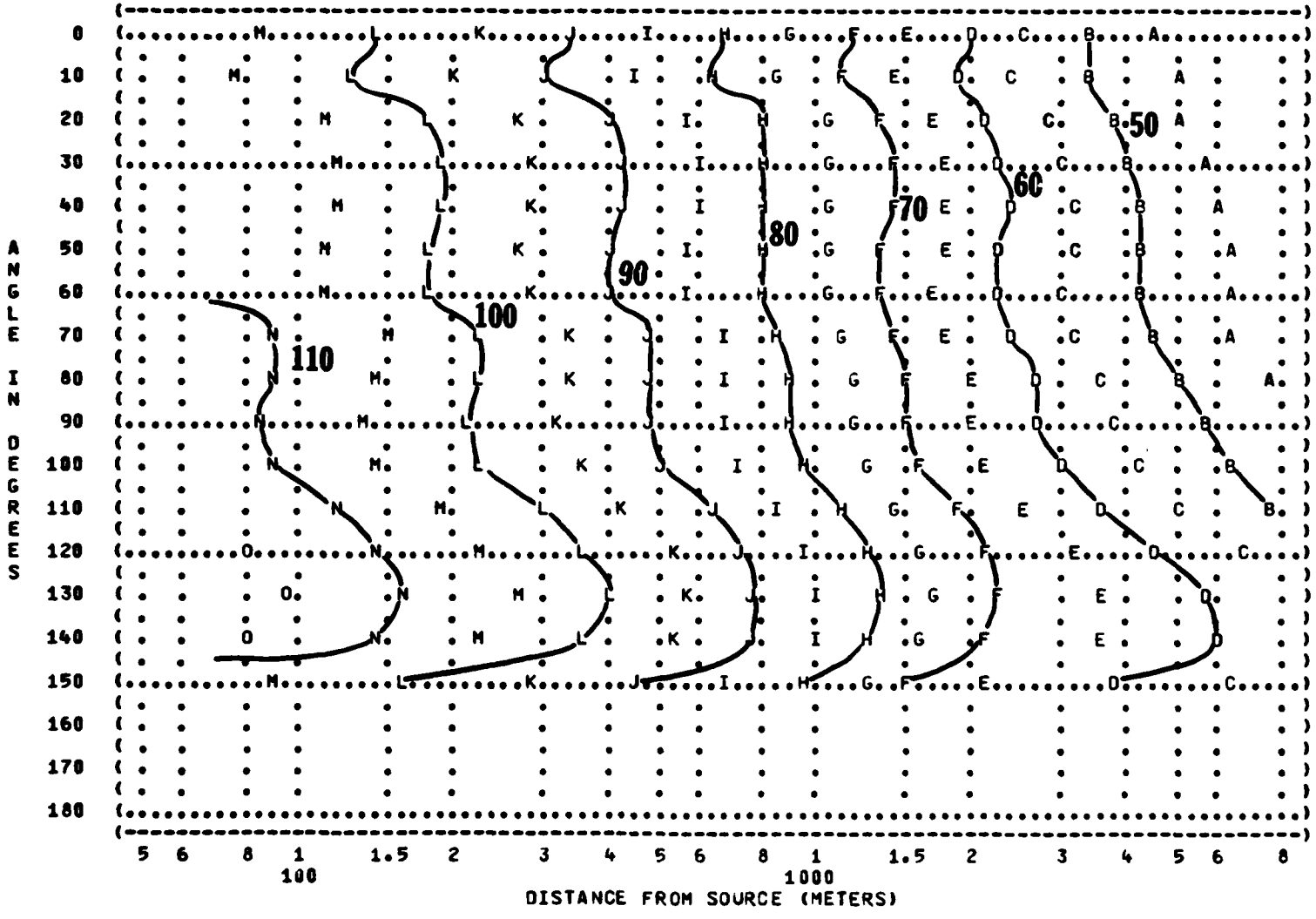
FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 13



POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115

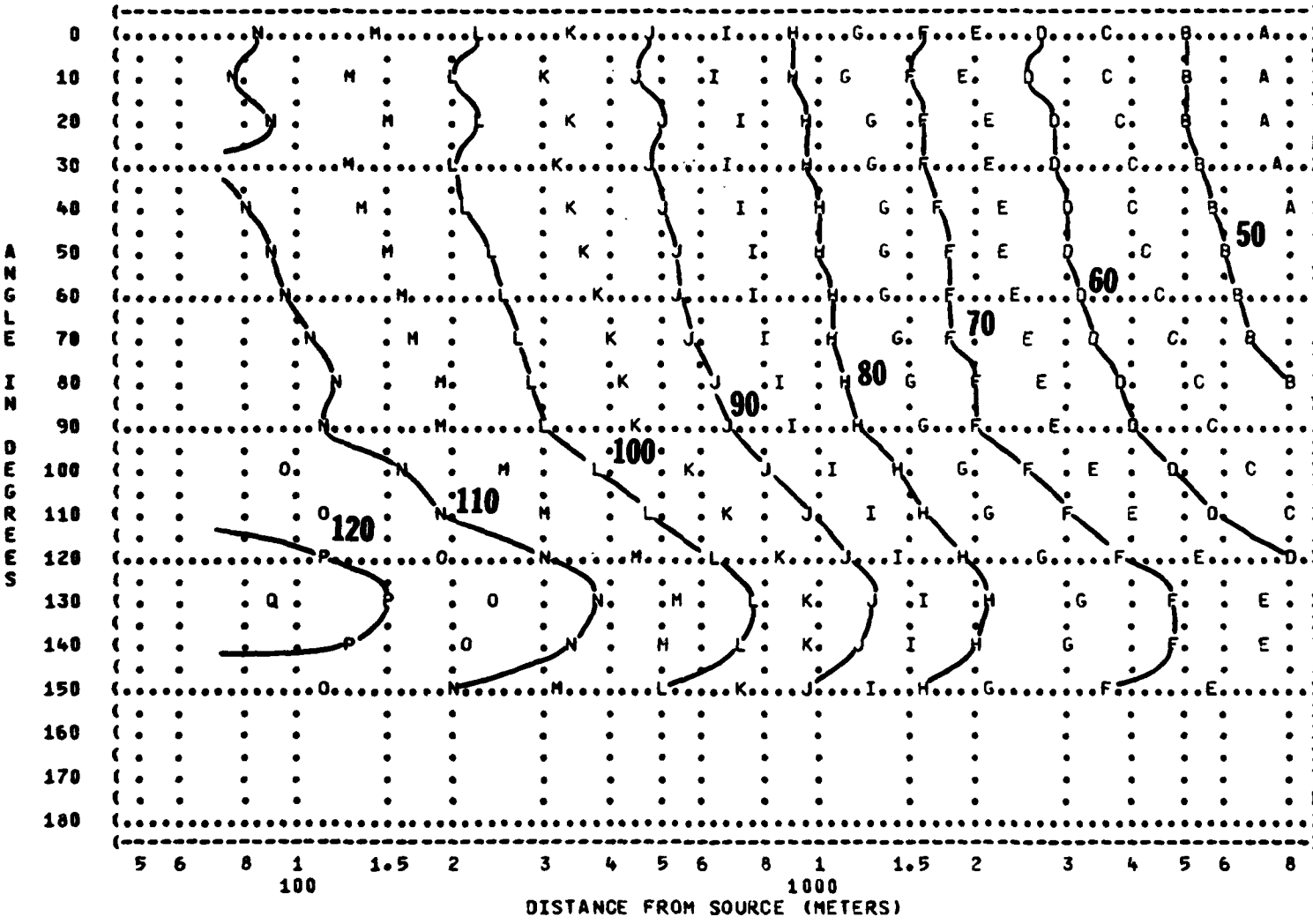
FIGURE 5: OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 13

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125

FIGURE: 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 14

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90

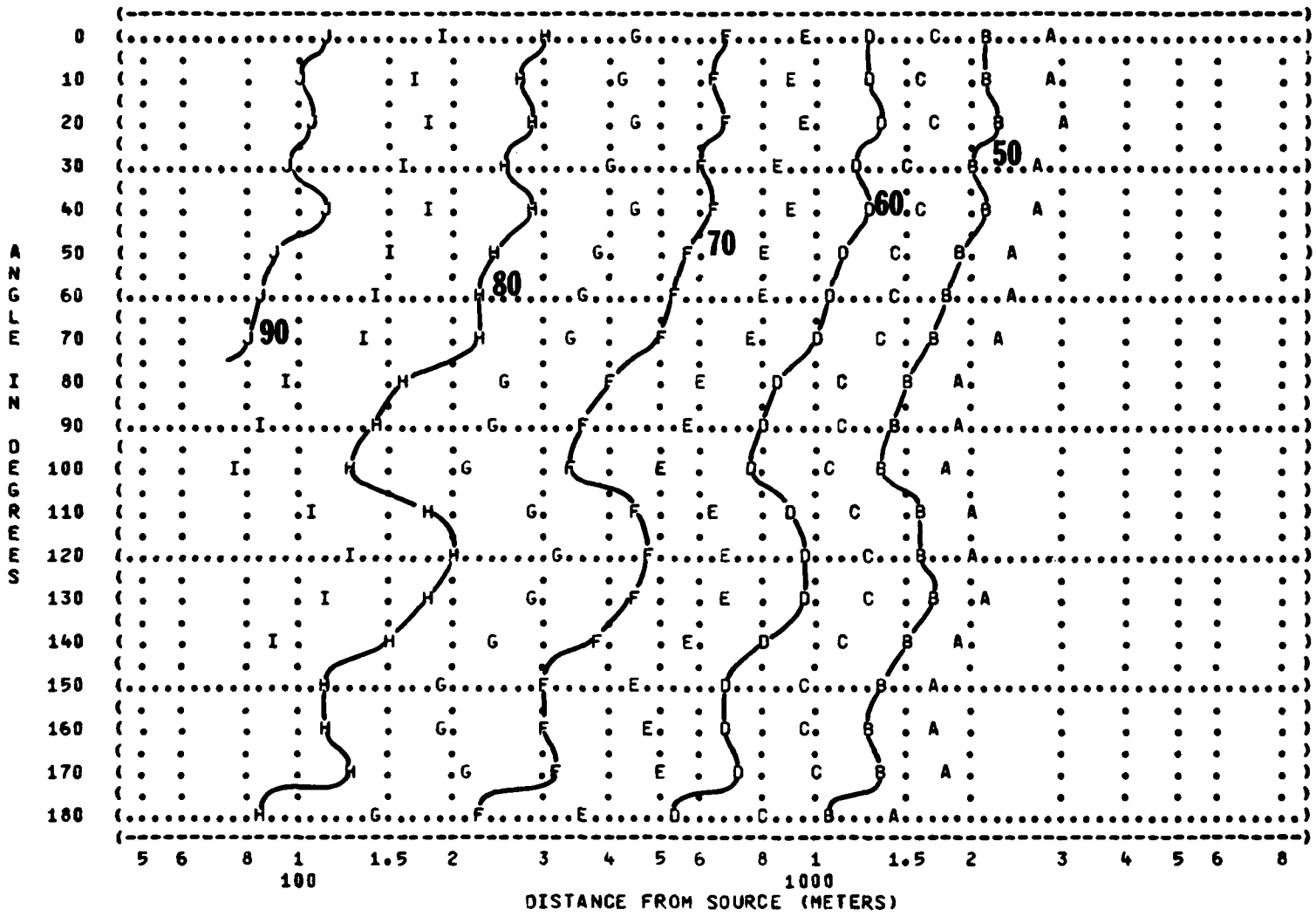


FIGURE: 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 14

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
76% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

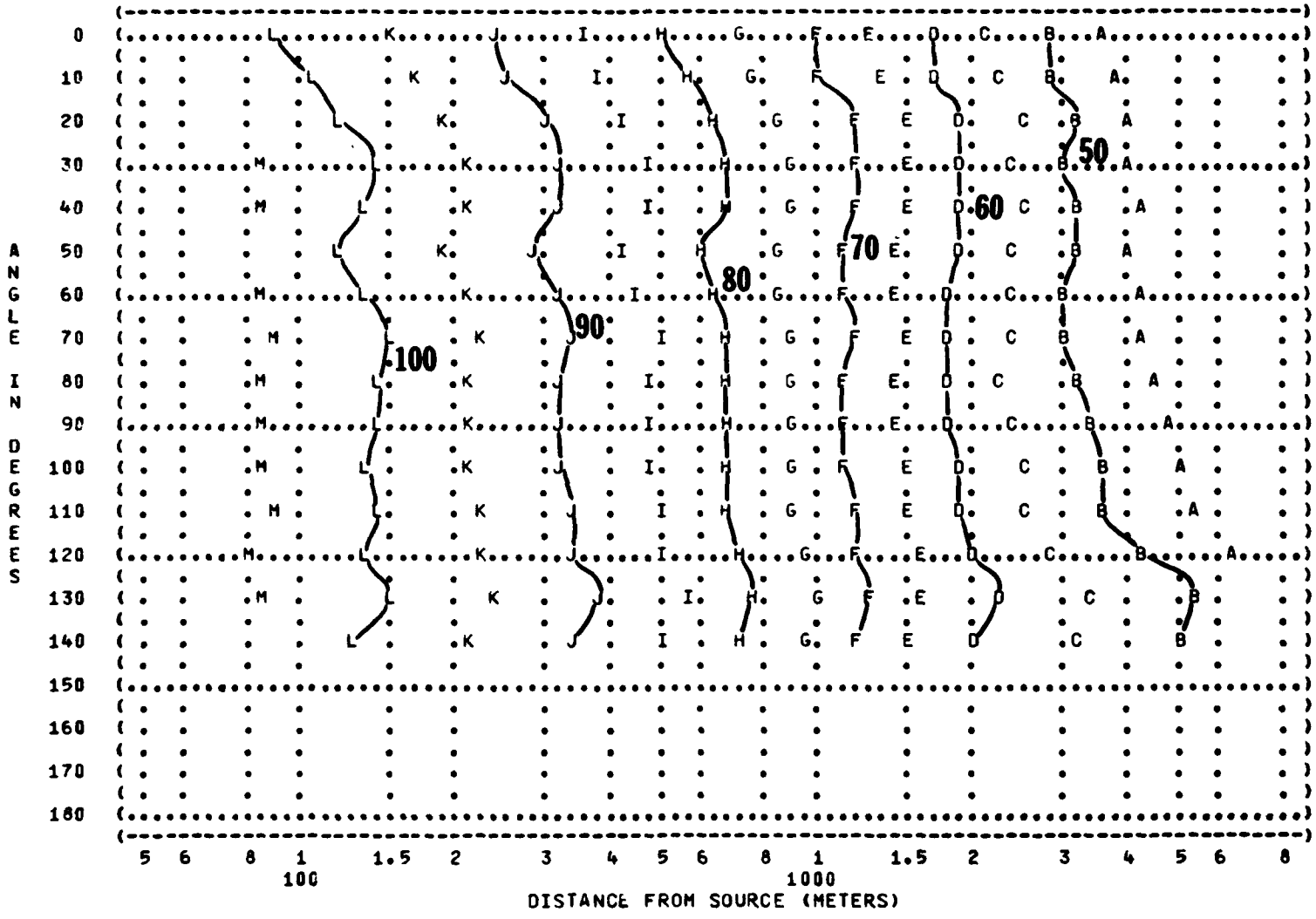


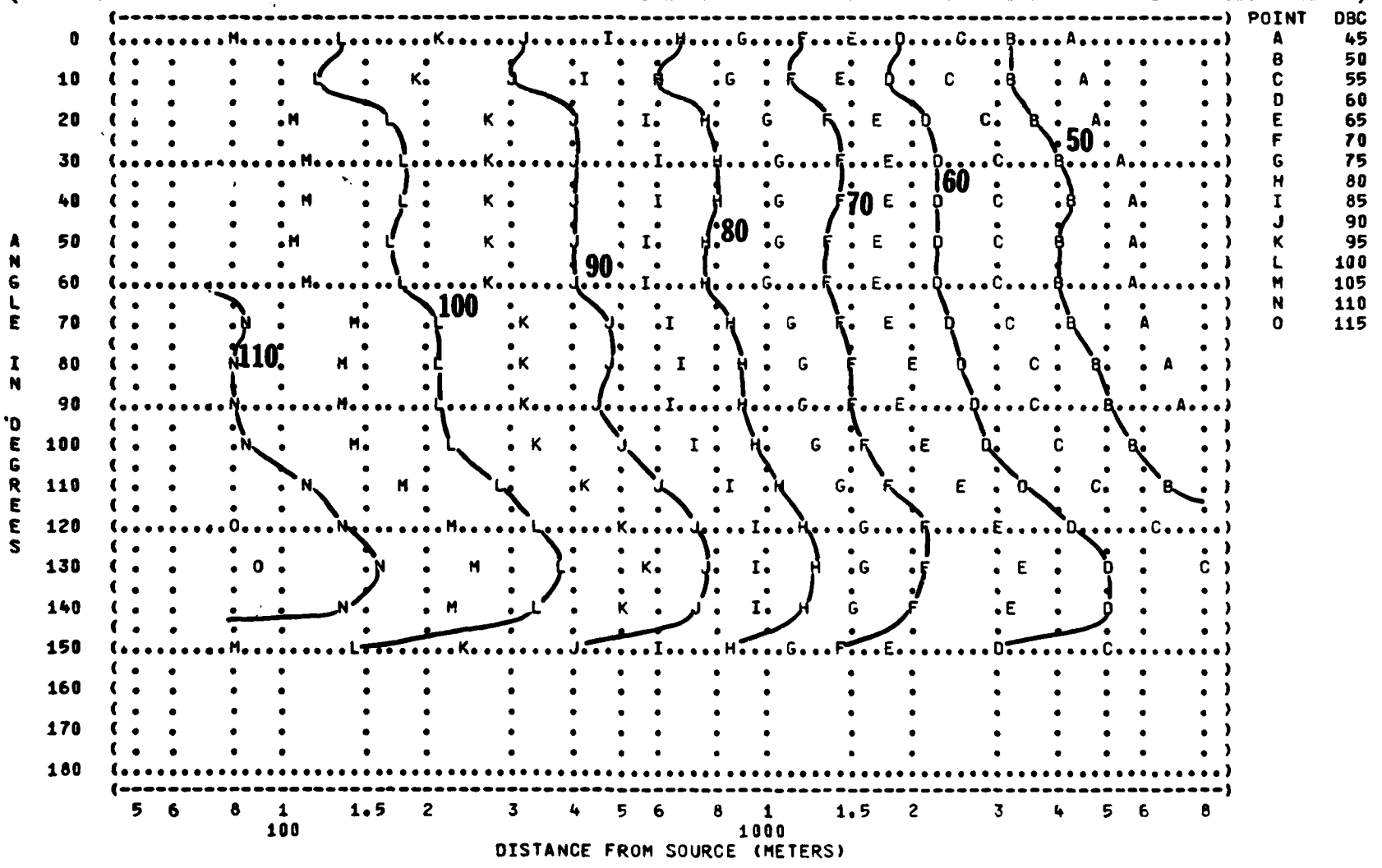
FIGURE: 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 14

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115

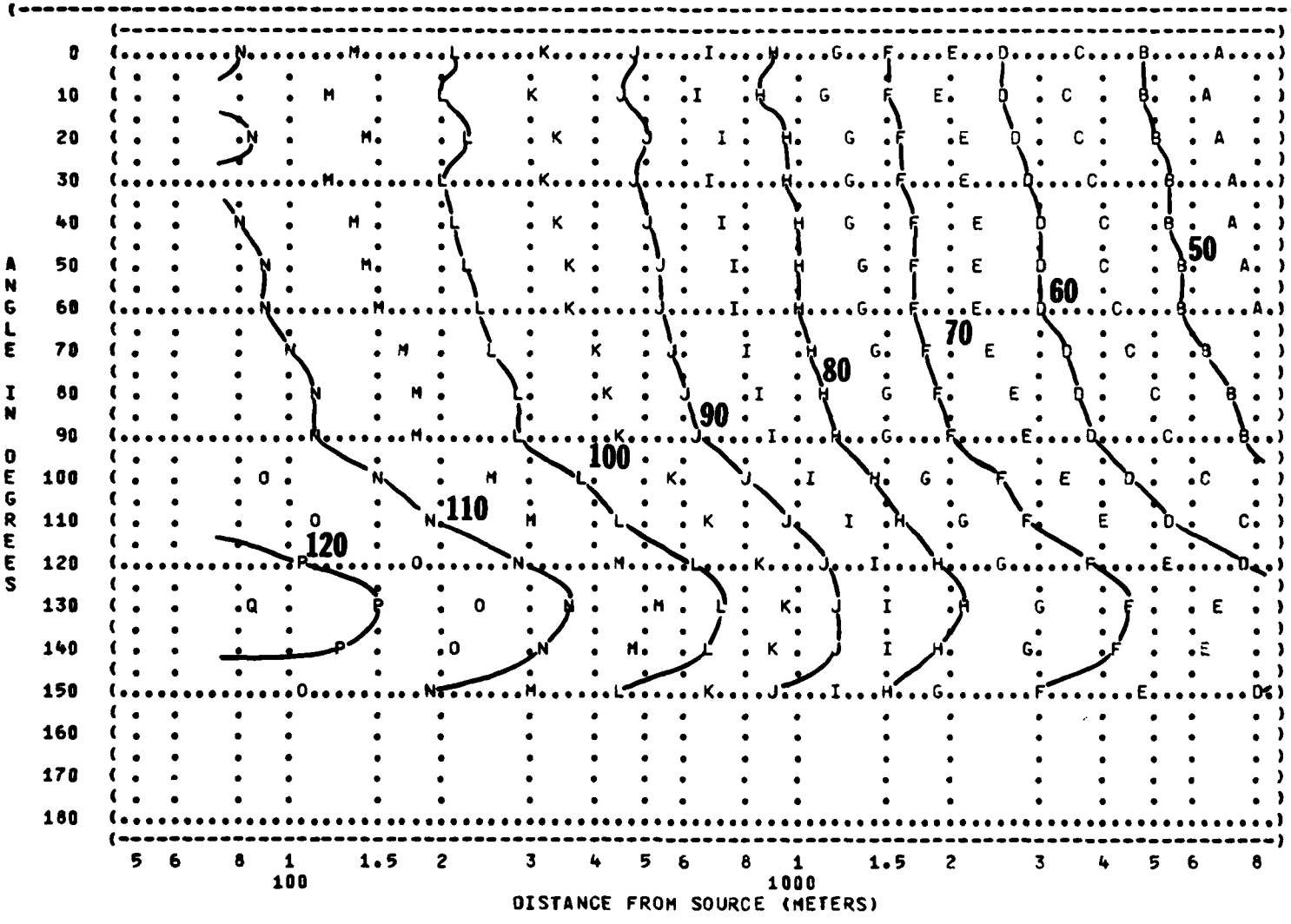
FIGURE 6: C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (OBC)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 14

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	OBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125

FIGURE: 7

A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90

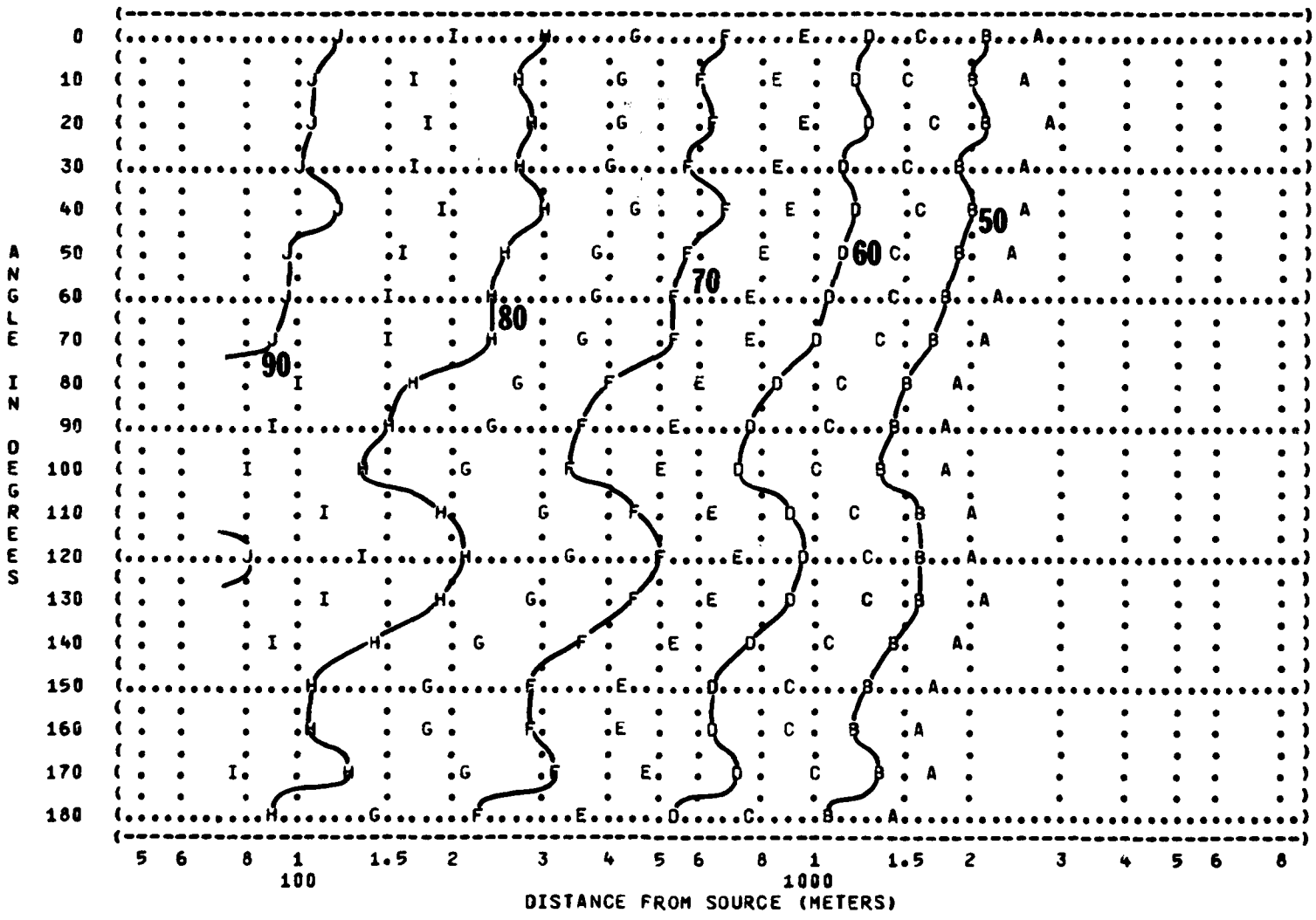


FIGURE 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

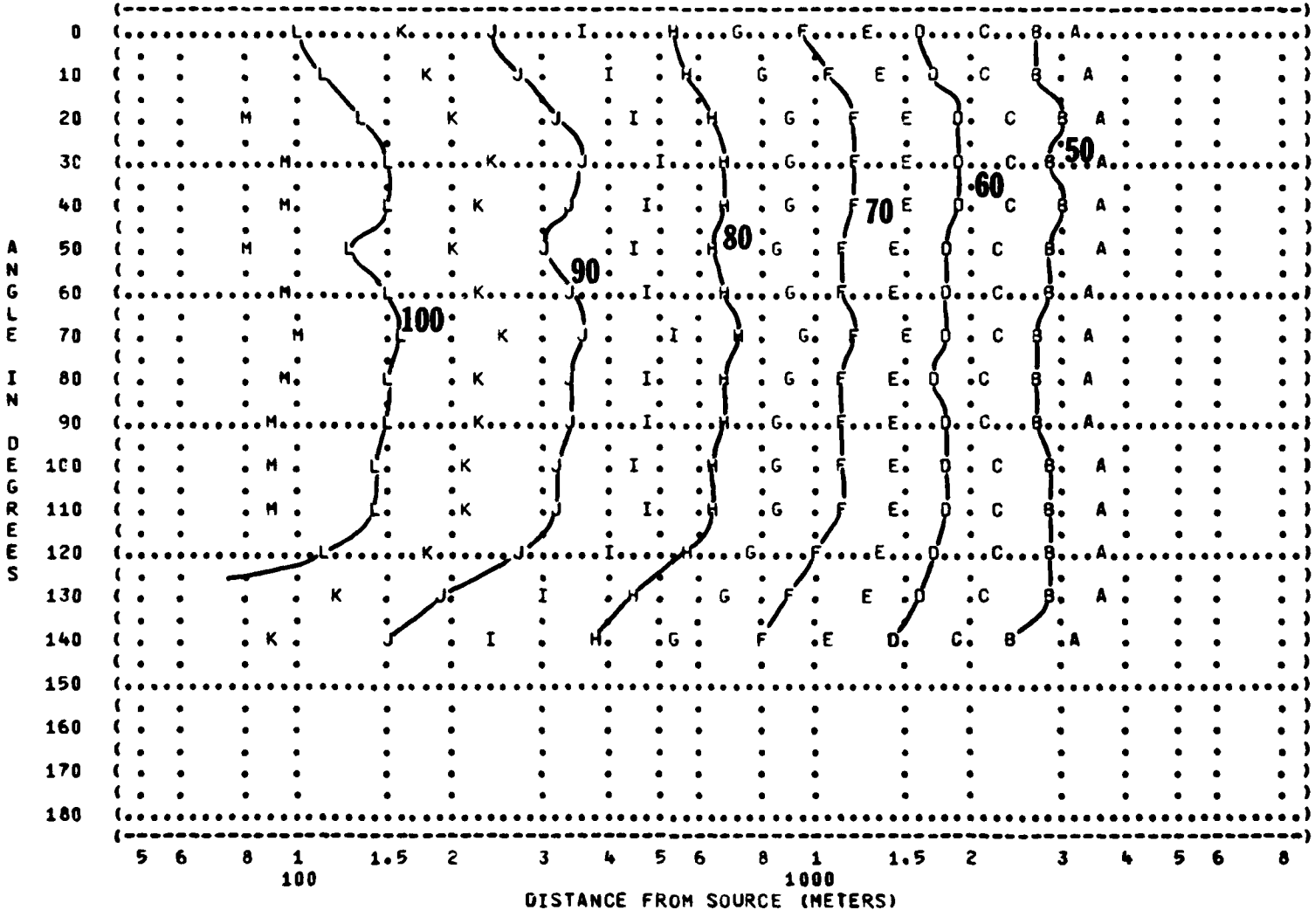


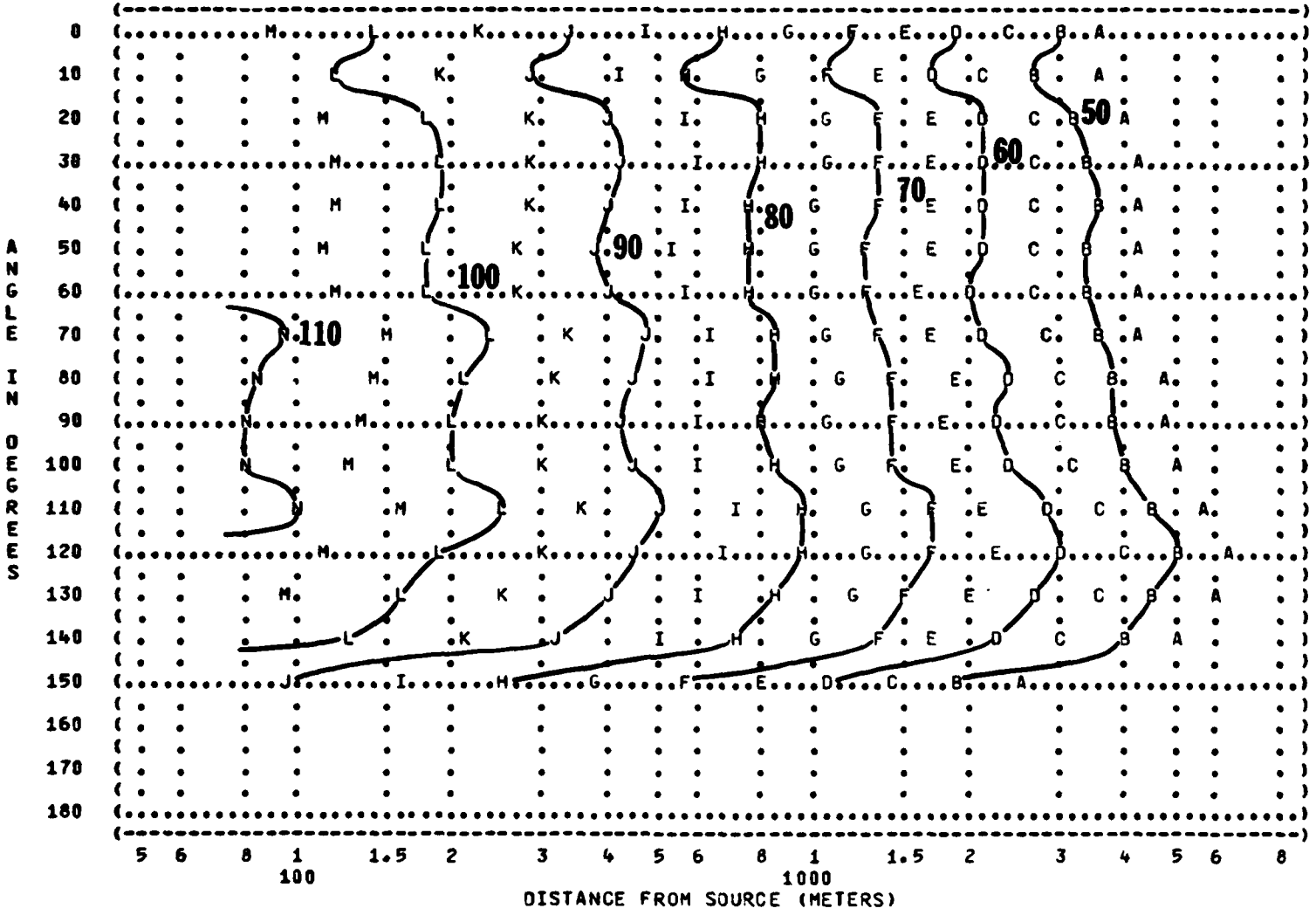
FIGURE: 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110

FIGURE 7: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115

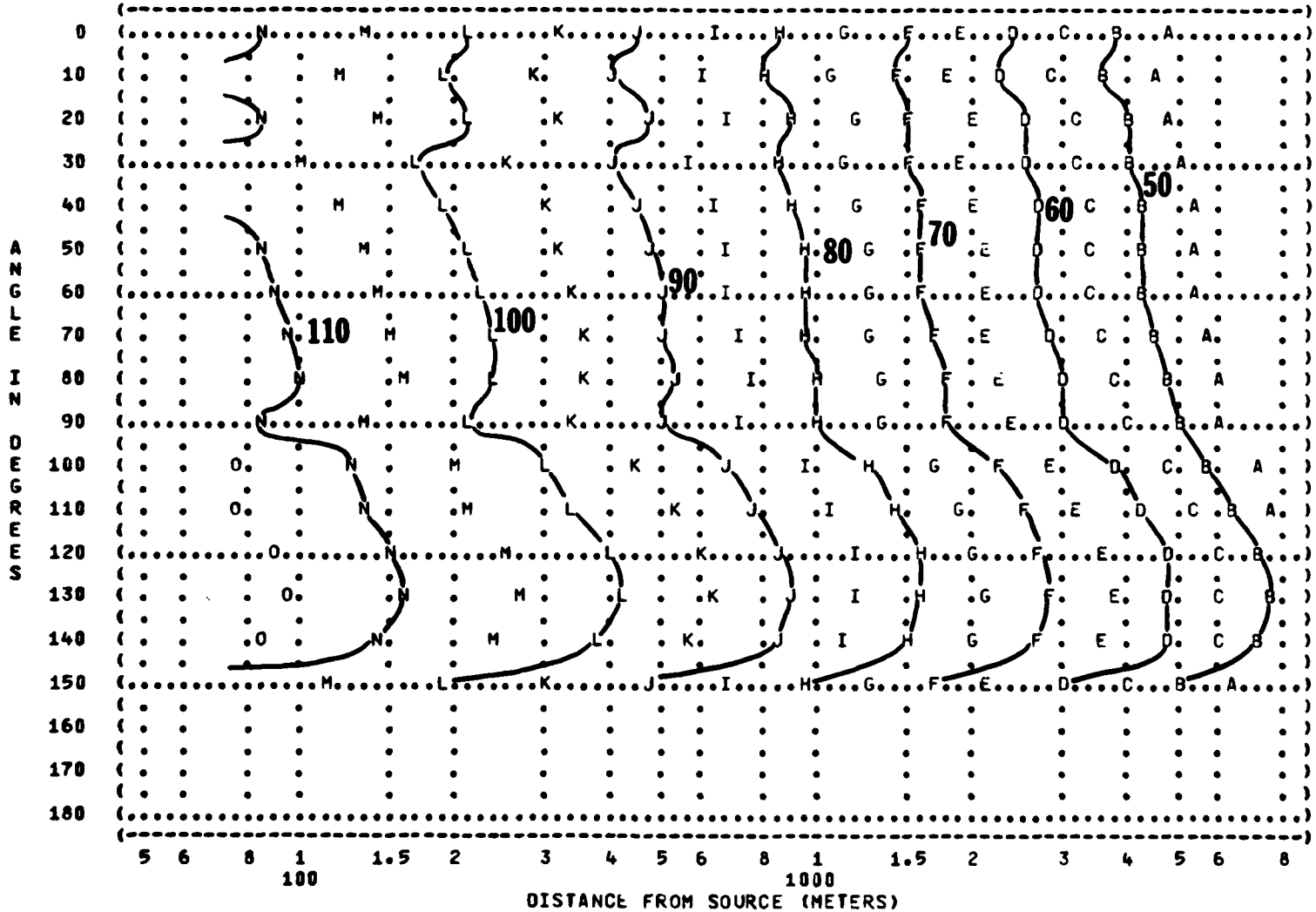


FIGURE: 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNOB)

IDENTIFICATION:
ONEGA 1.4
TEST 78-088-001
RUN 01
18 SEP 78
PAGE 16

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	PNOB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95
I	100
J	105

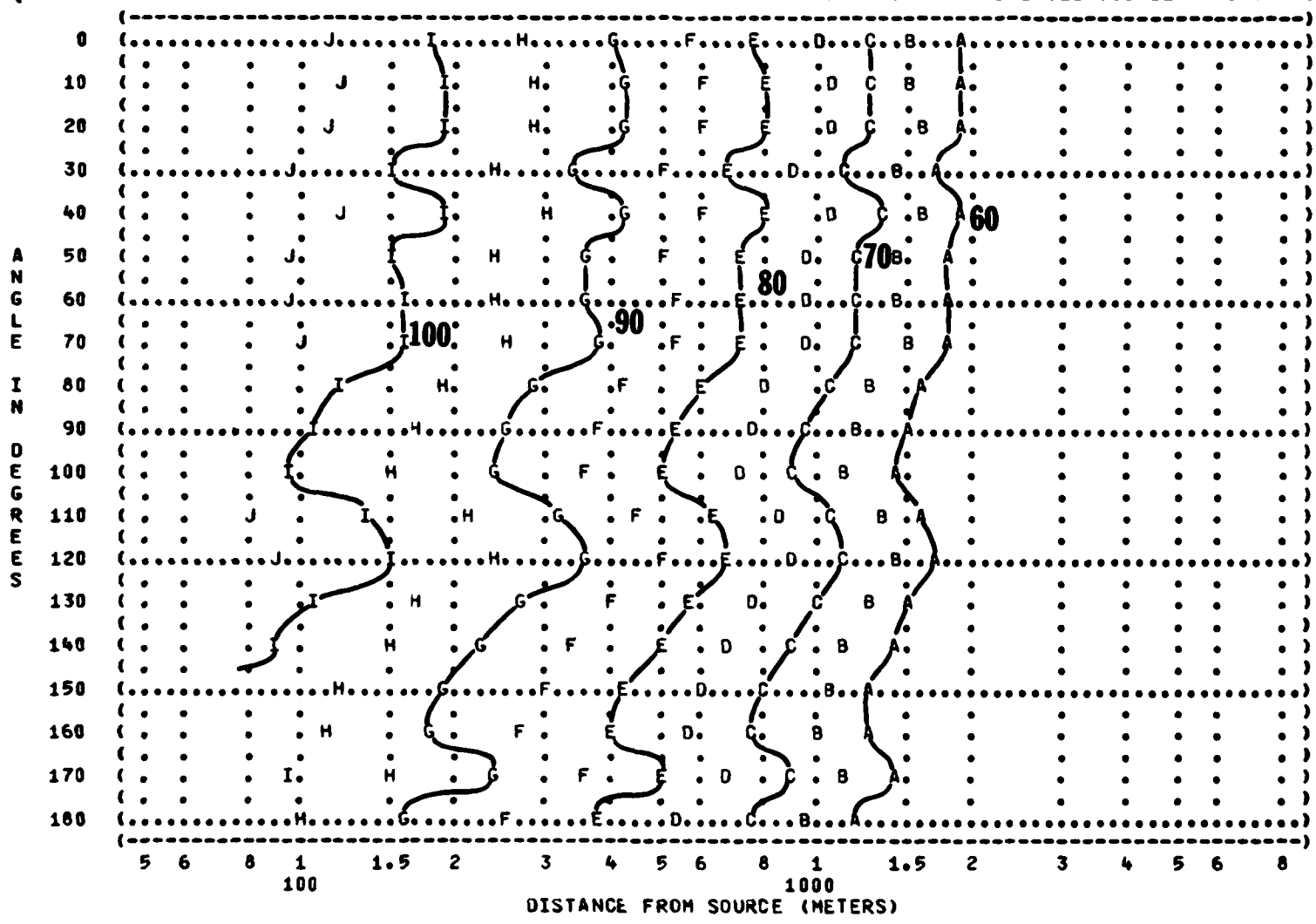


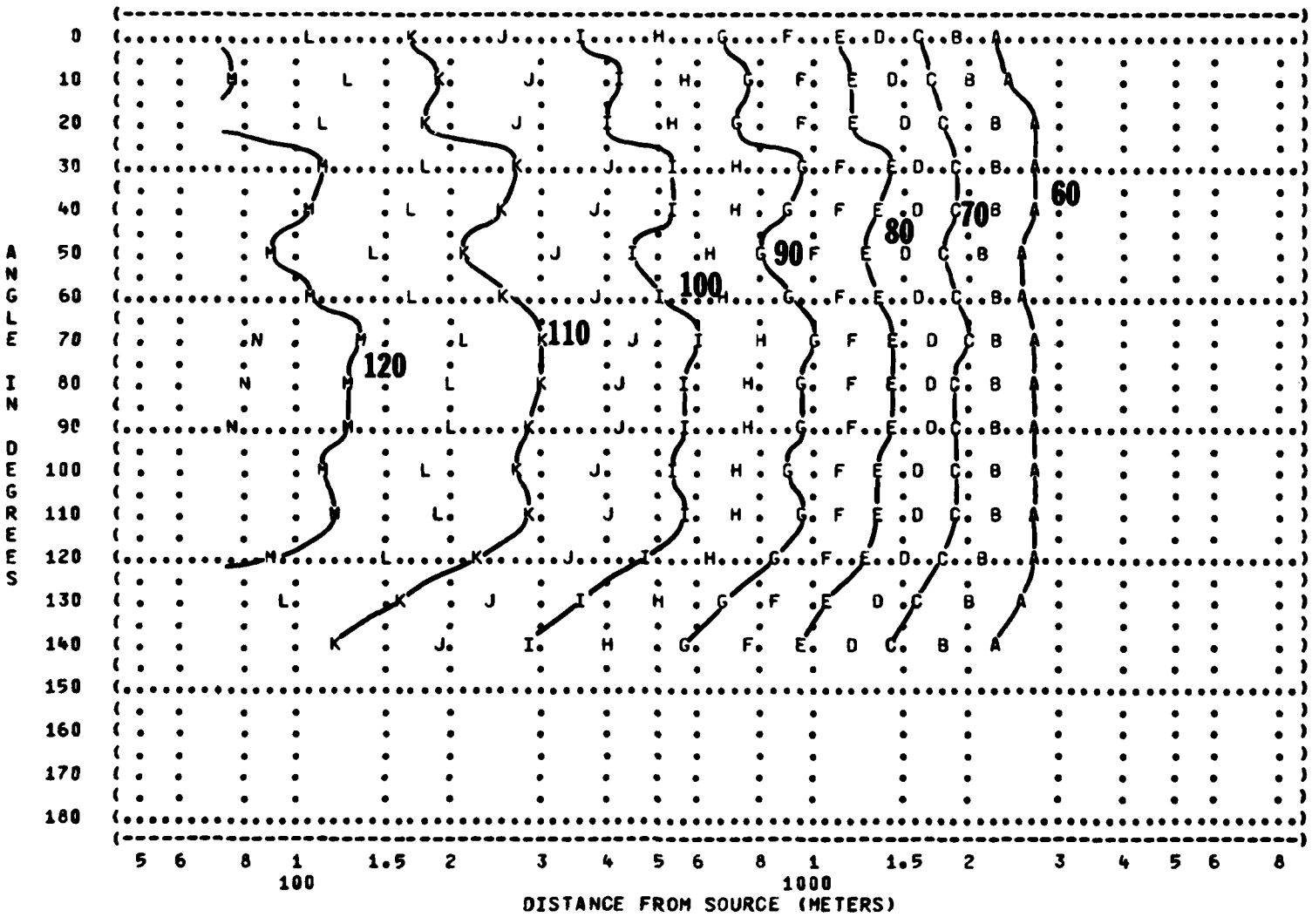
FIGURE: 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 16

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	PNDB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95
I	100
J	105
K	110
L	115
M	120
N	125

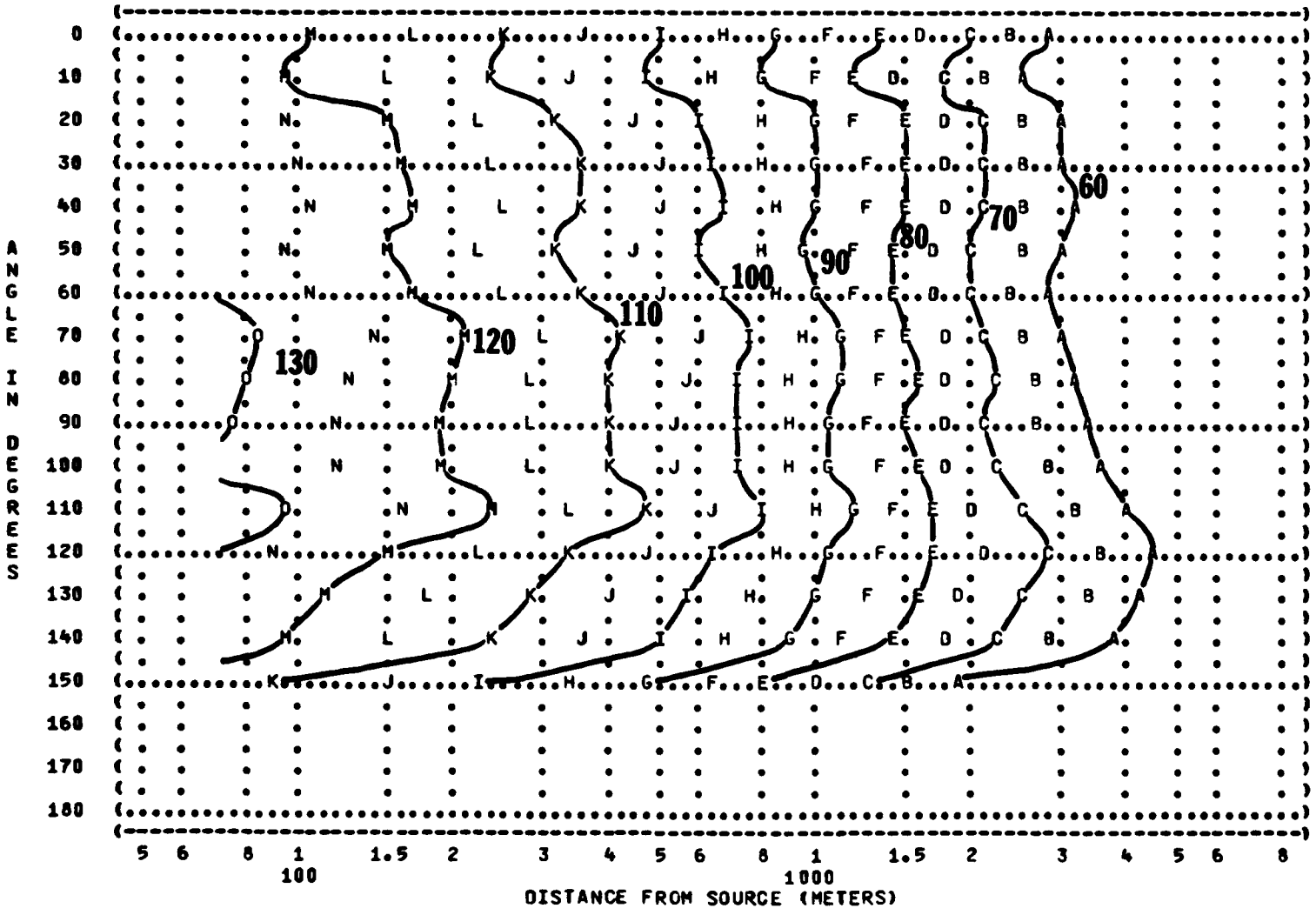
FIGURE 8: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
24 JAN 79
PAGE 16

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	PNDB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95
I	100
J	105
K	110
L	115
M	120
N	125
O	130

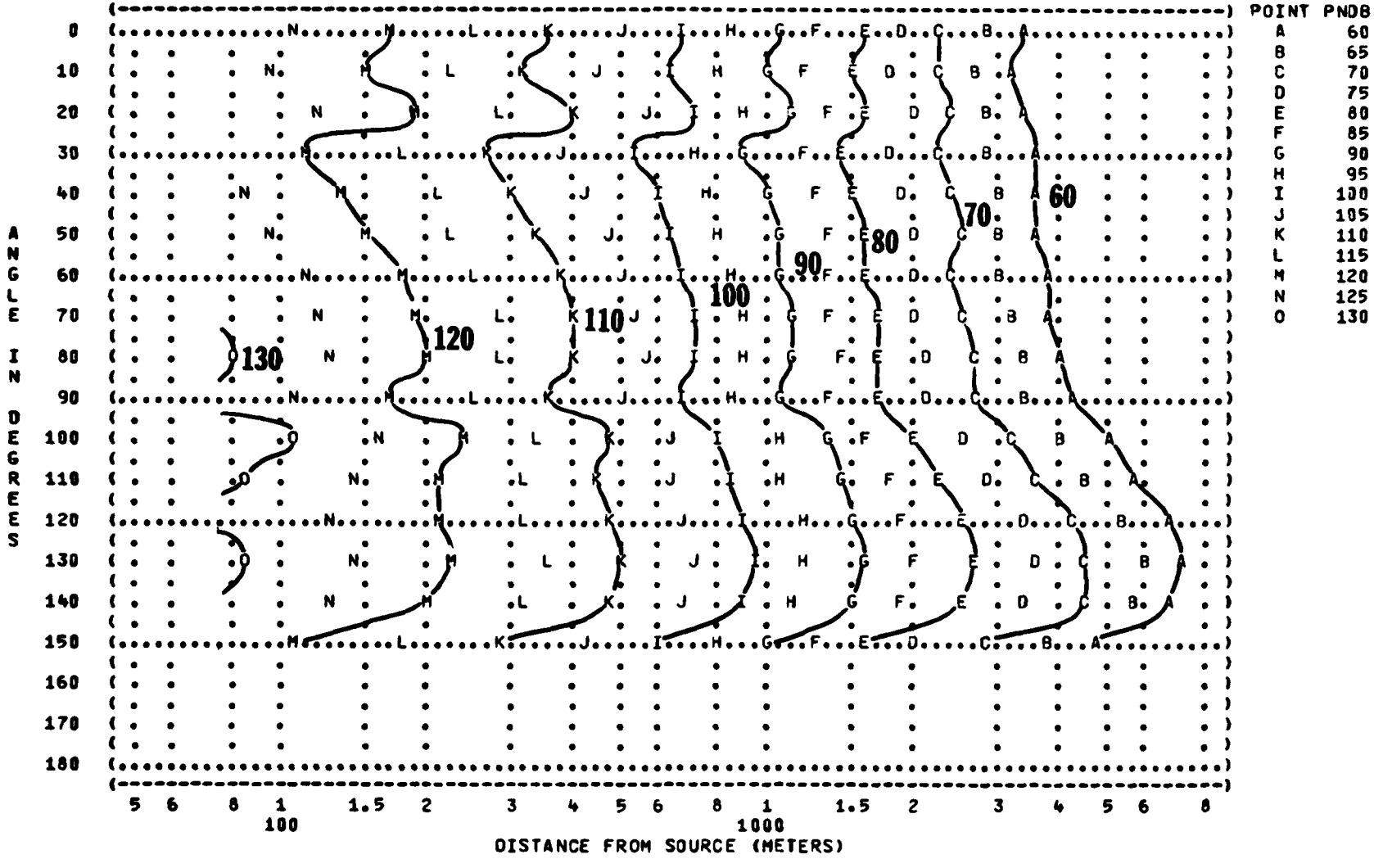
FIGURE 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 16

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	PNDB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95
I	100
J	105
K	110
L	115
M	120
N	125
O	130

FIGURE 9: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-888-881
RUN 01
18 SEP 78
PAGE 17

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85

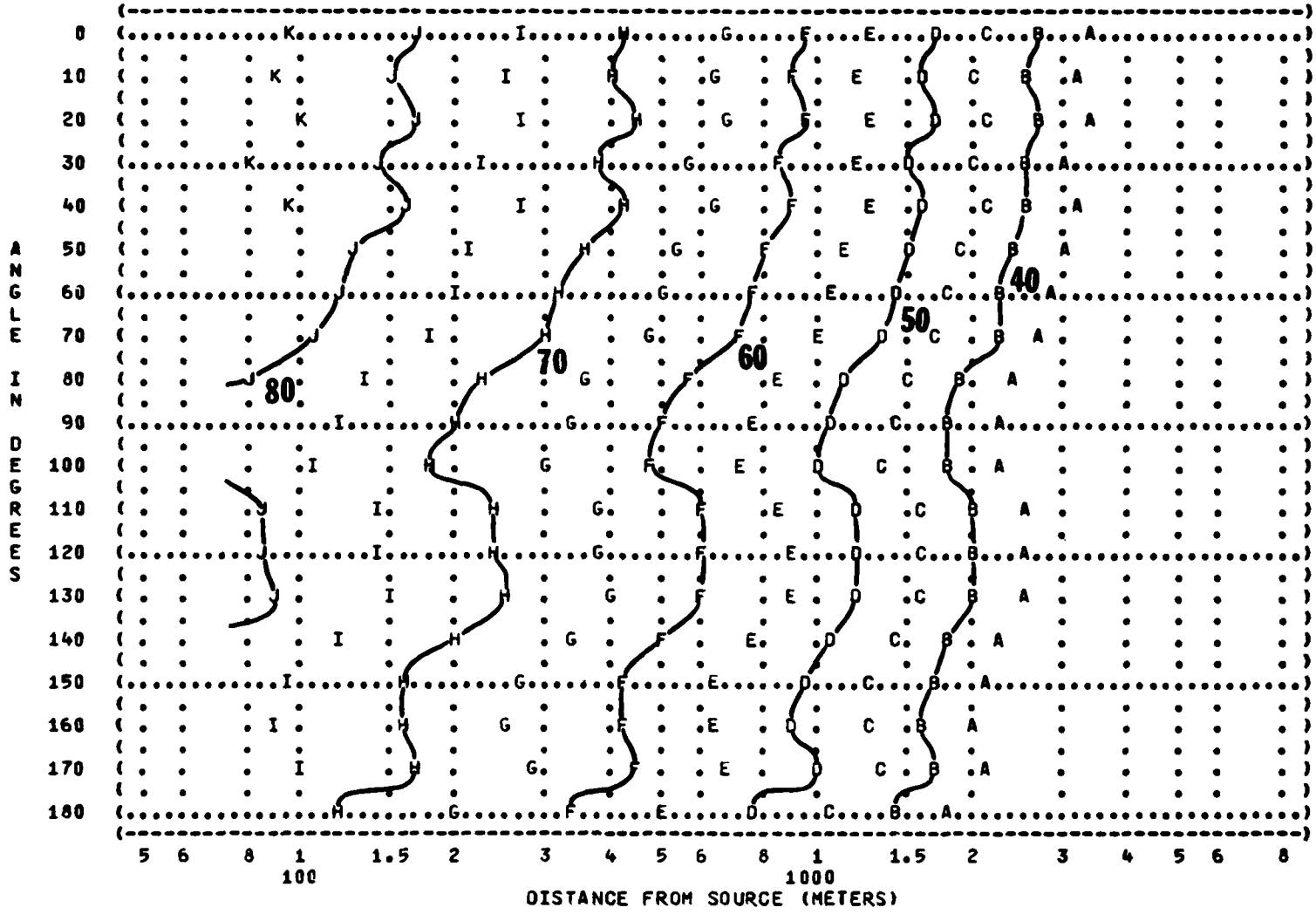


FIGURE 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 17

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

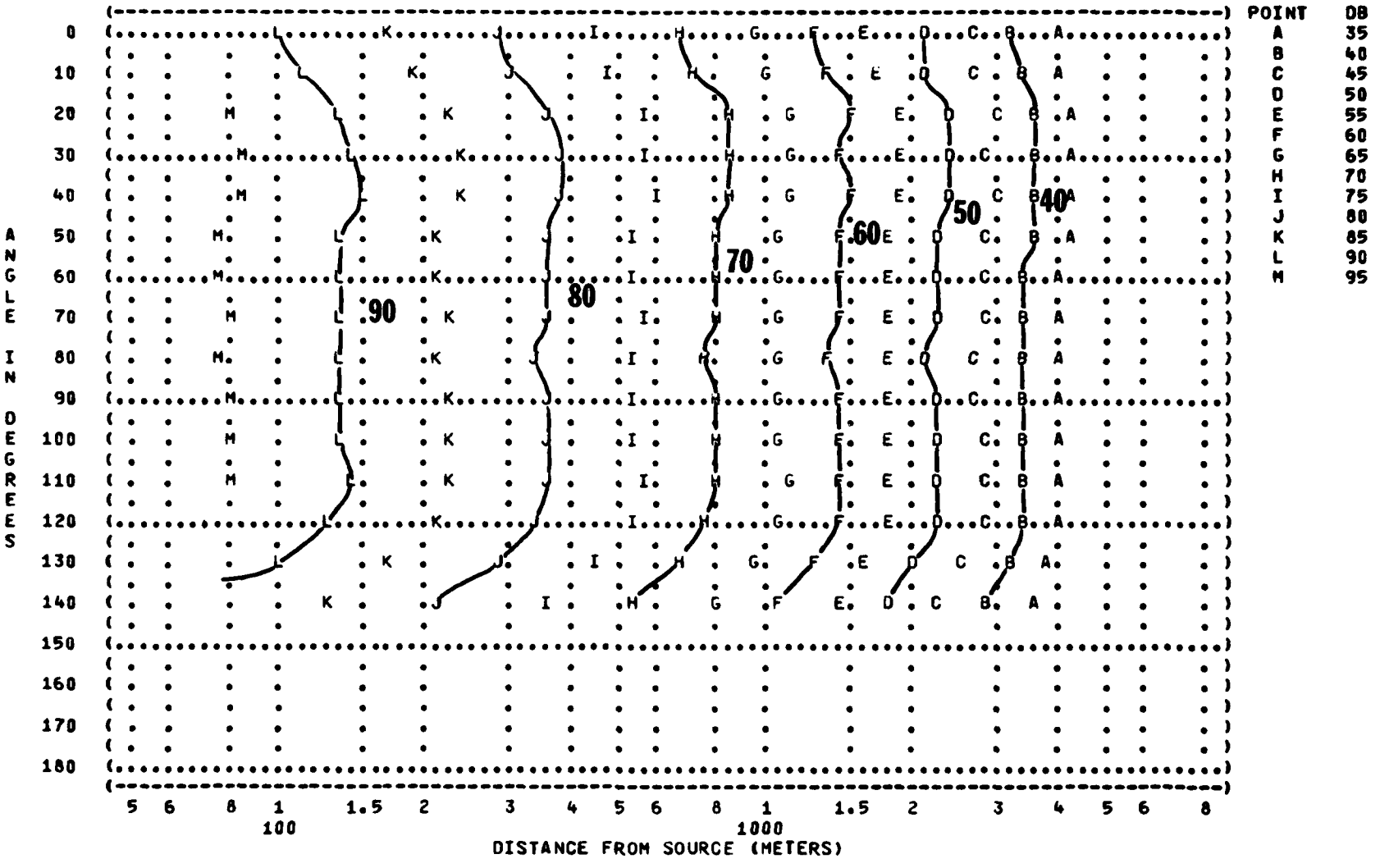


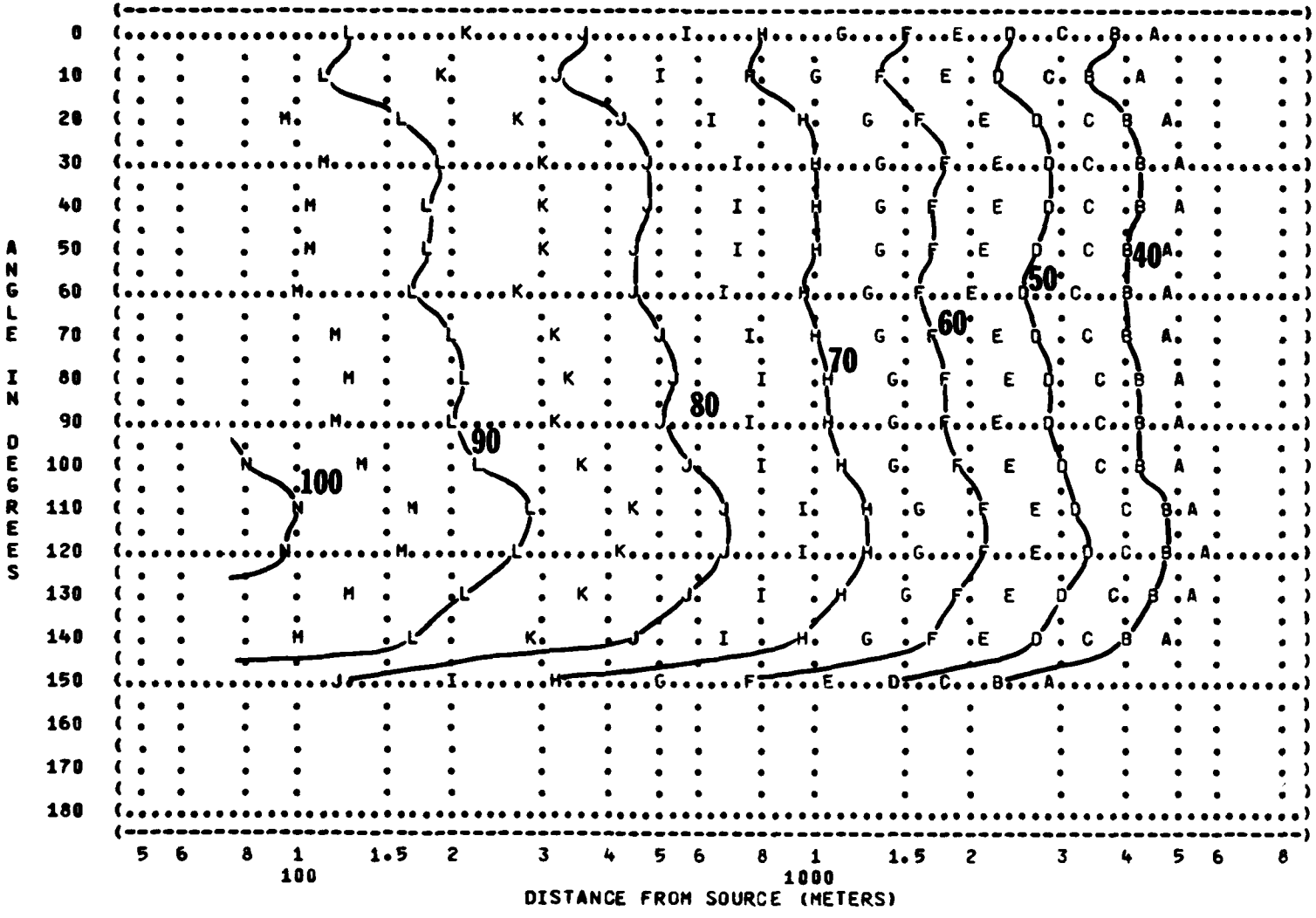
FIGURE: 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 17

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

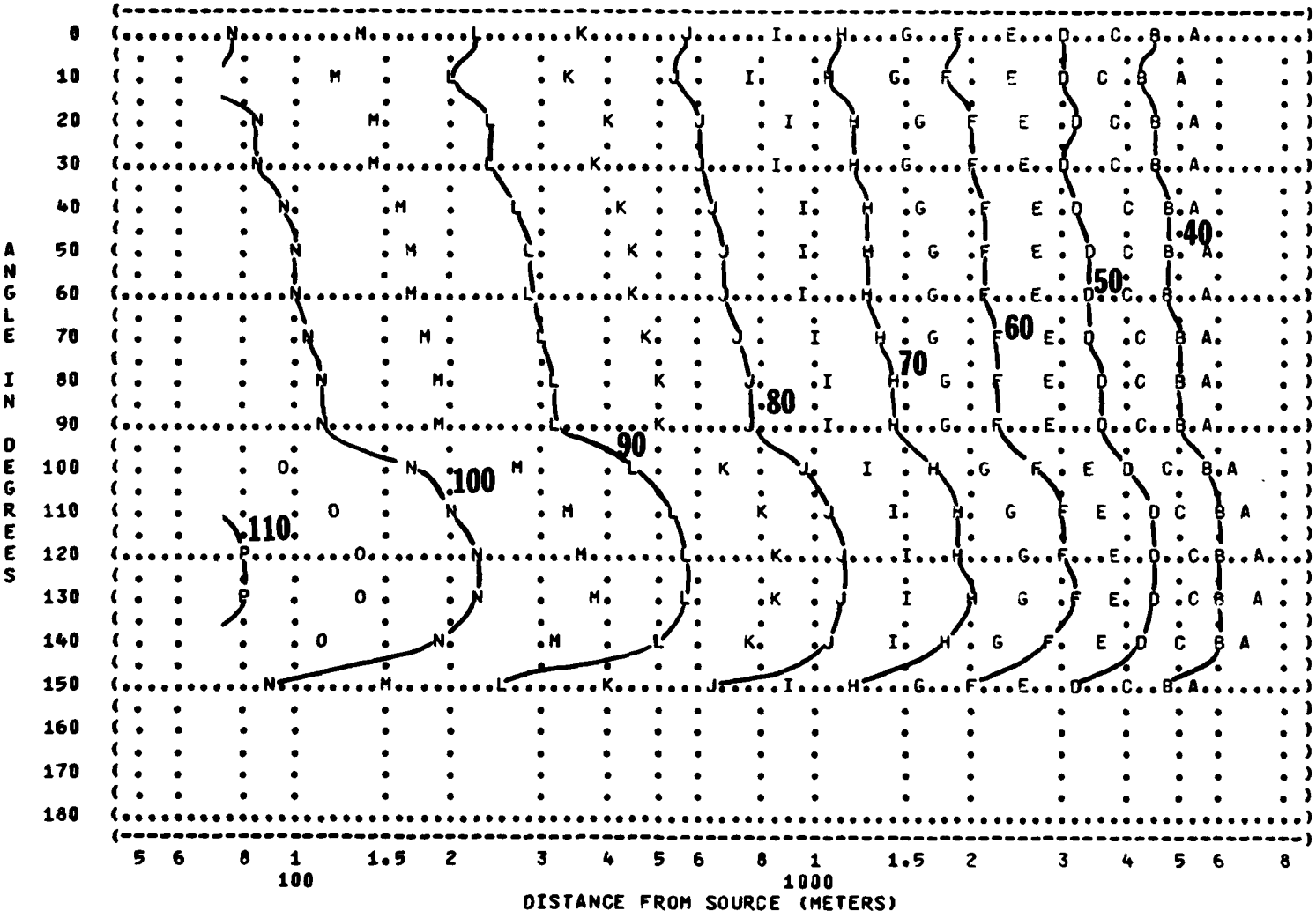
FIGURE 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 17

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 7

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

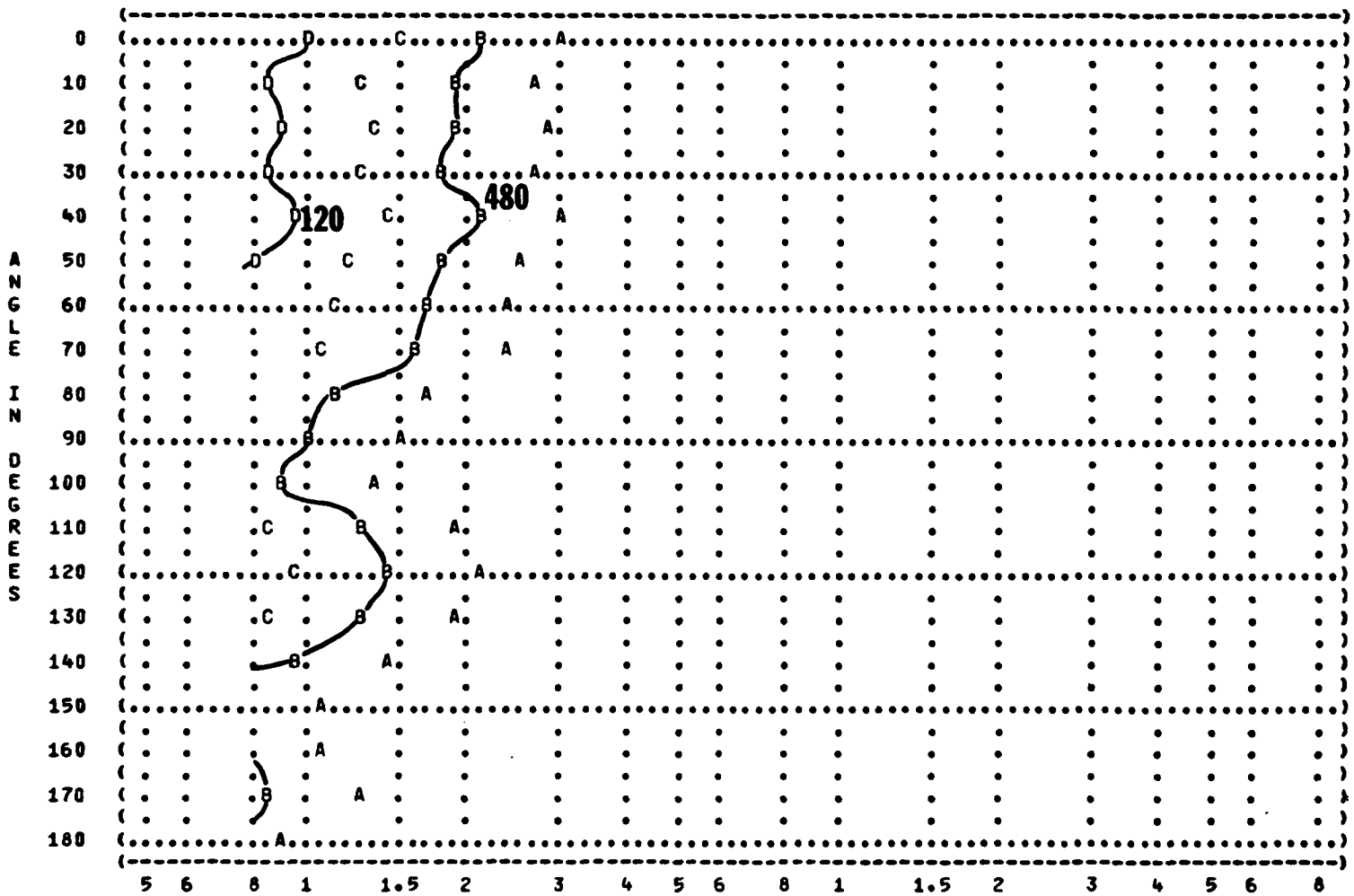


FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 8

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

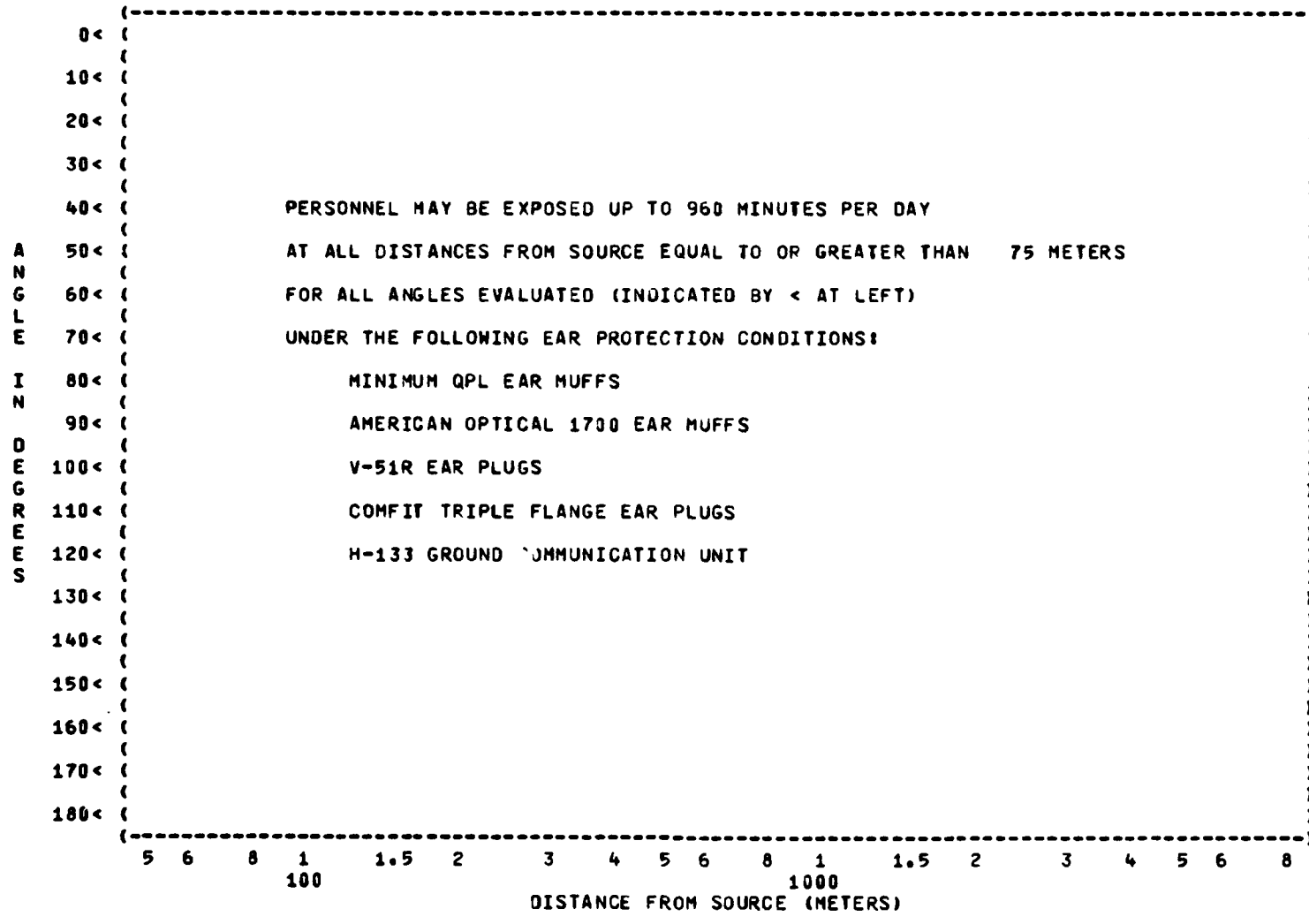


FIGURE: 10

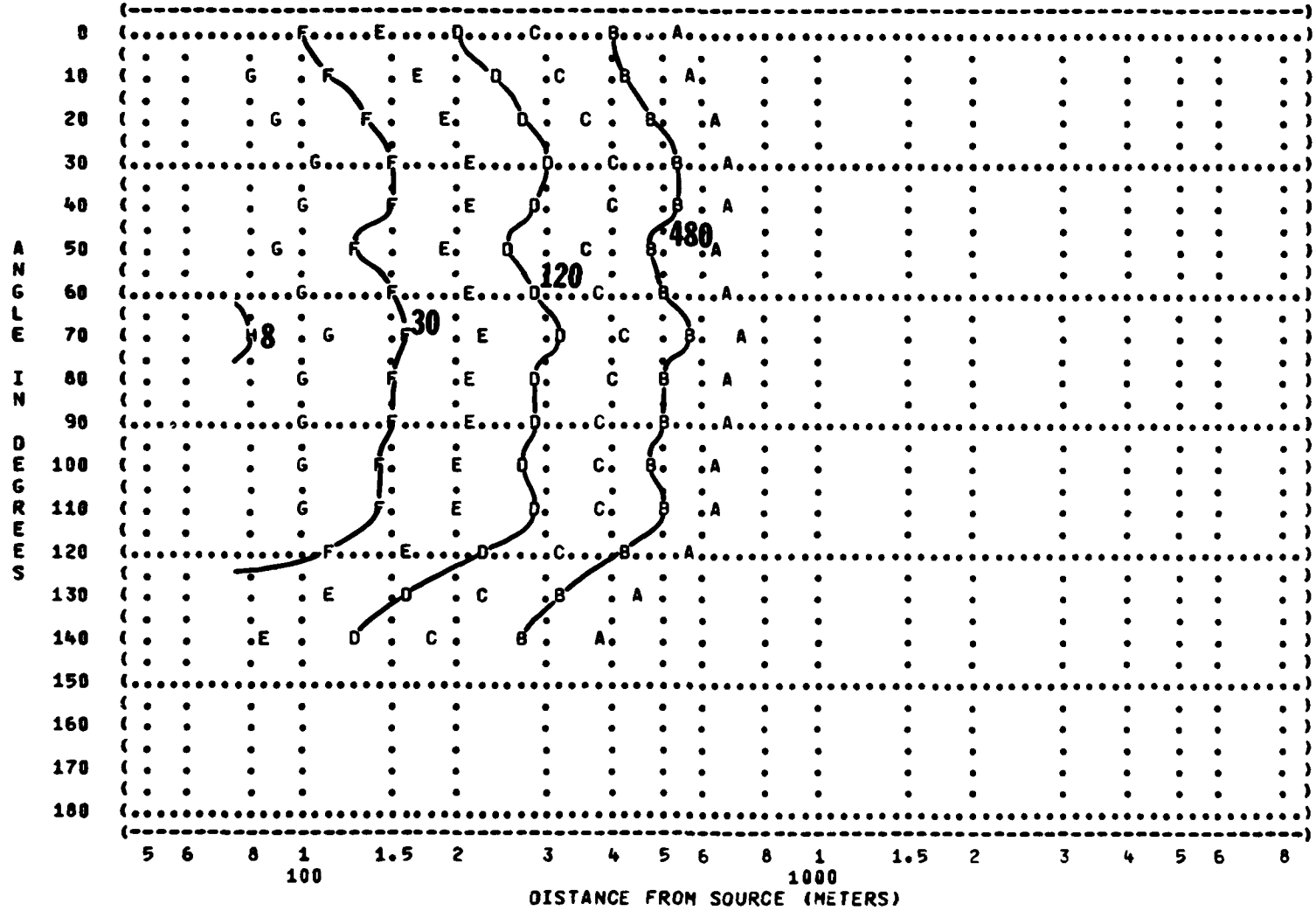
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 7

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 8

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960

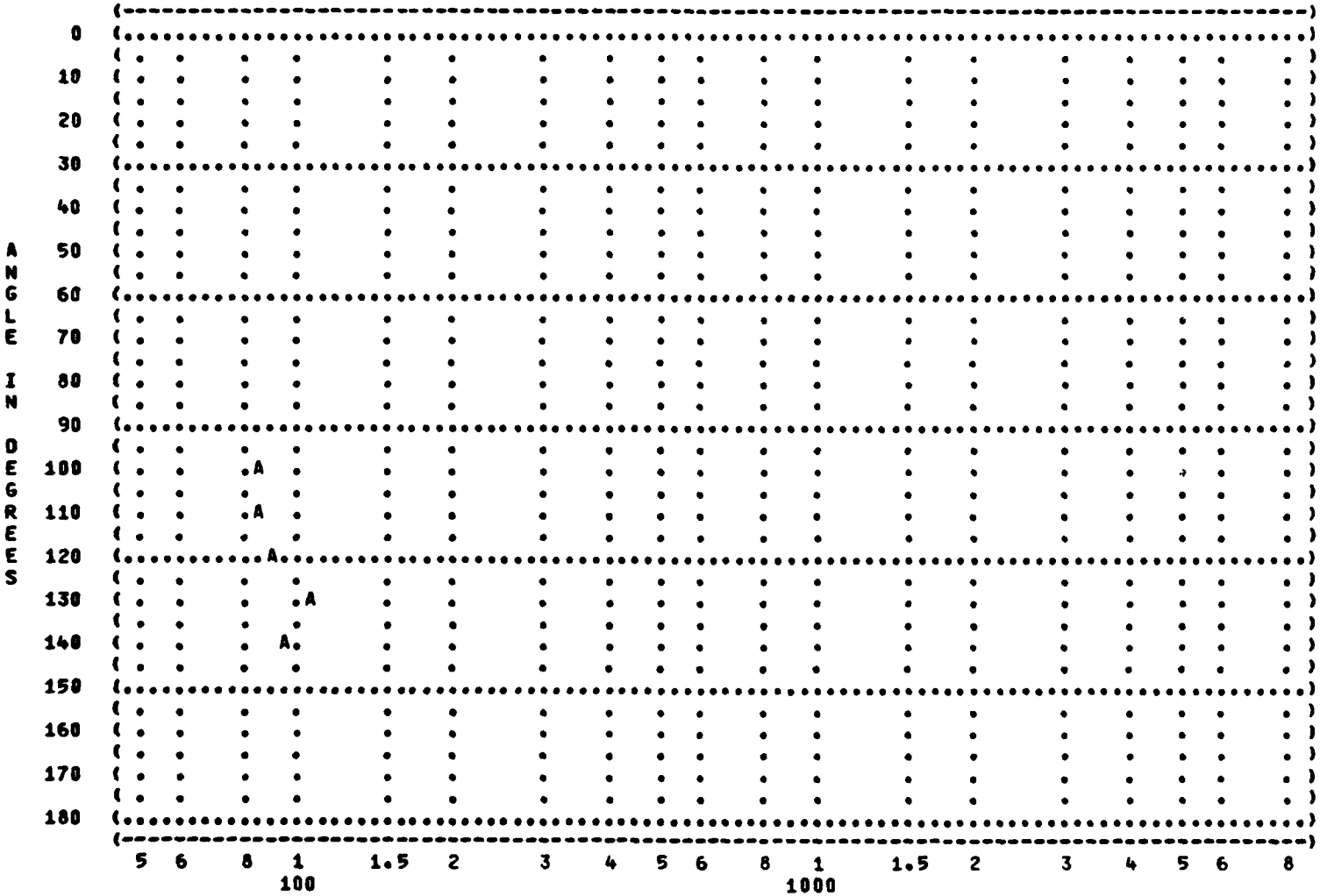


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 9

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480

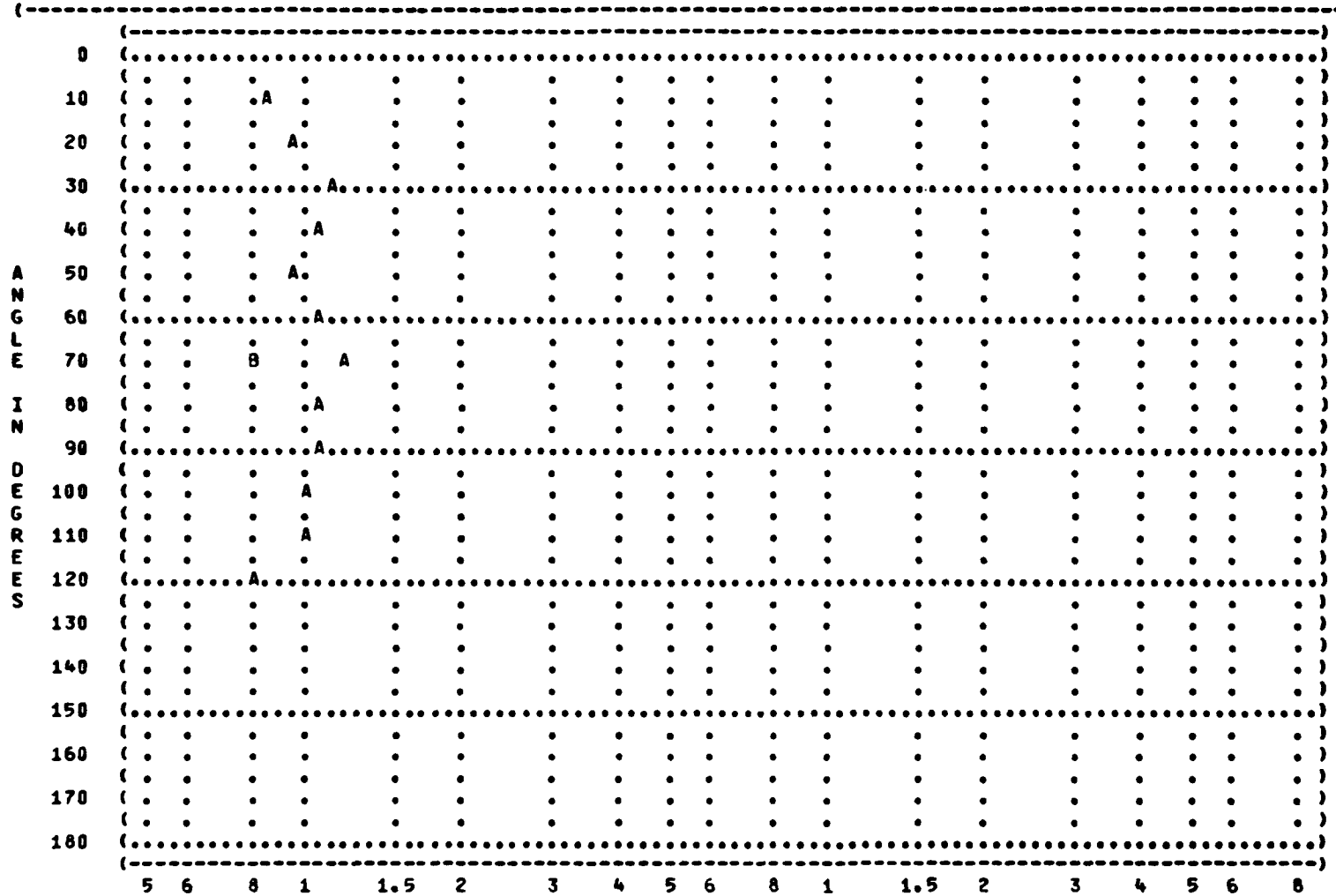


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 10

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960

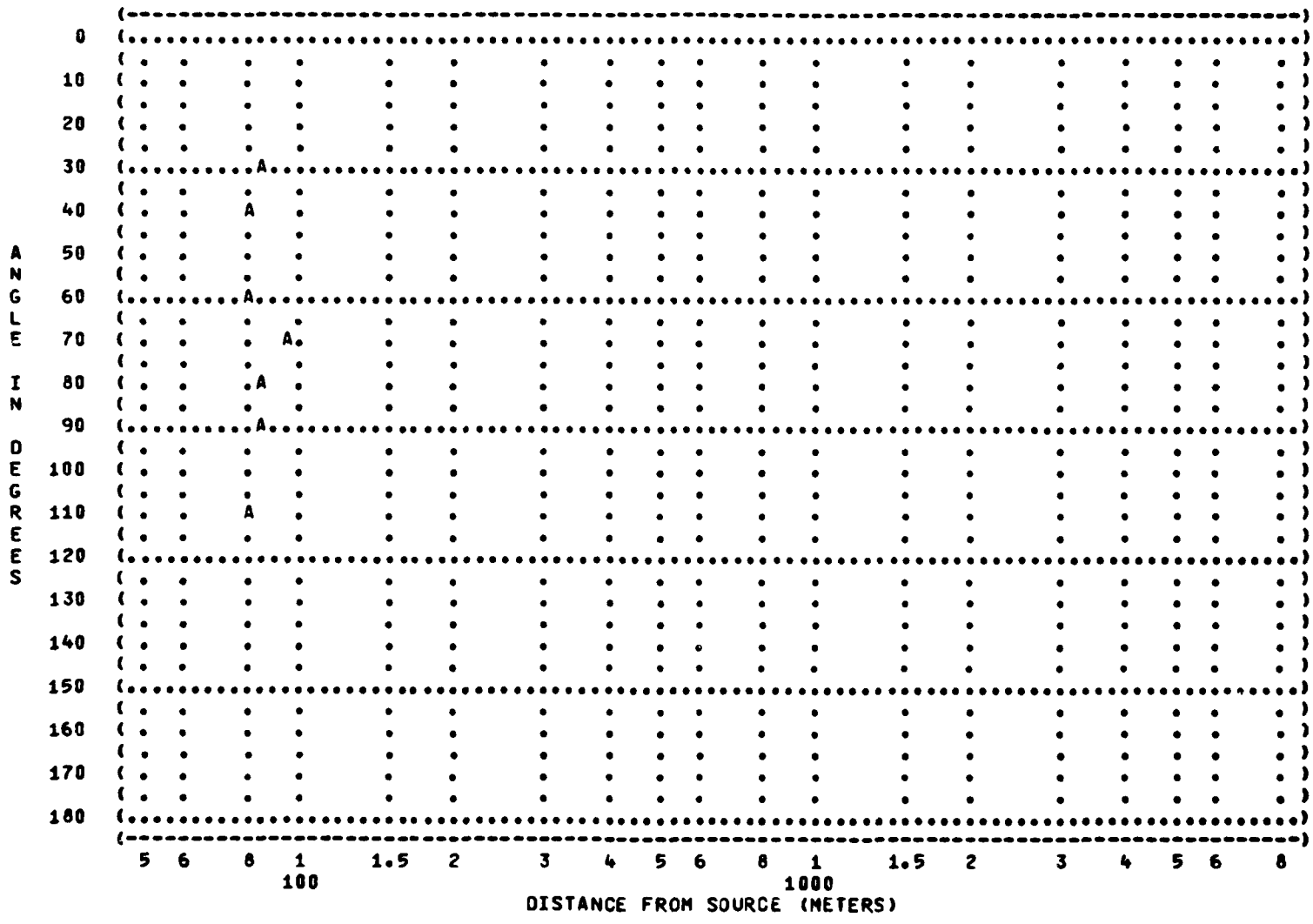


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 11

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

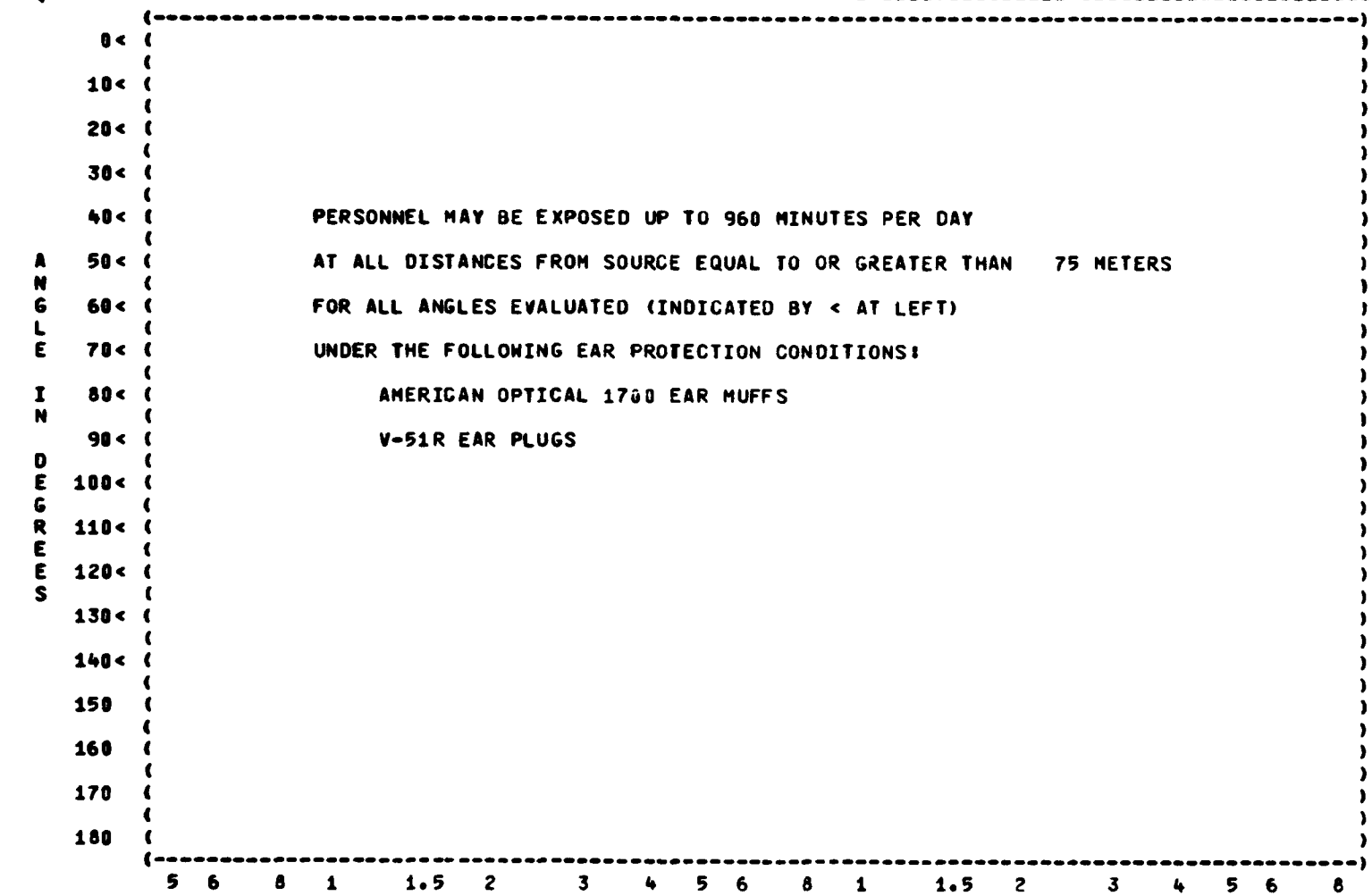


FIGURE: 10

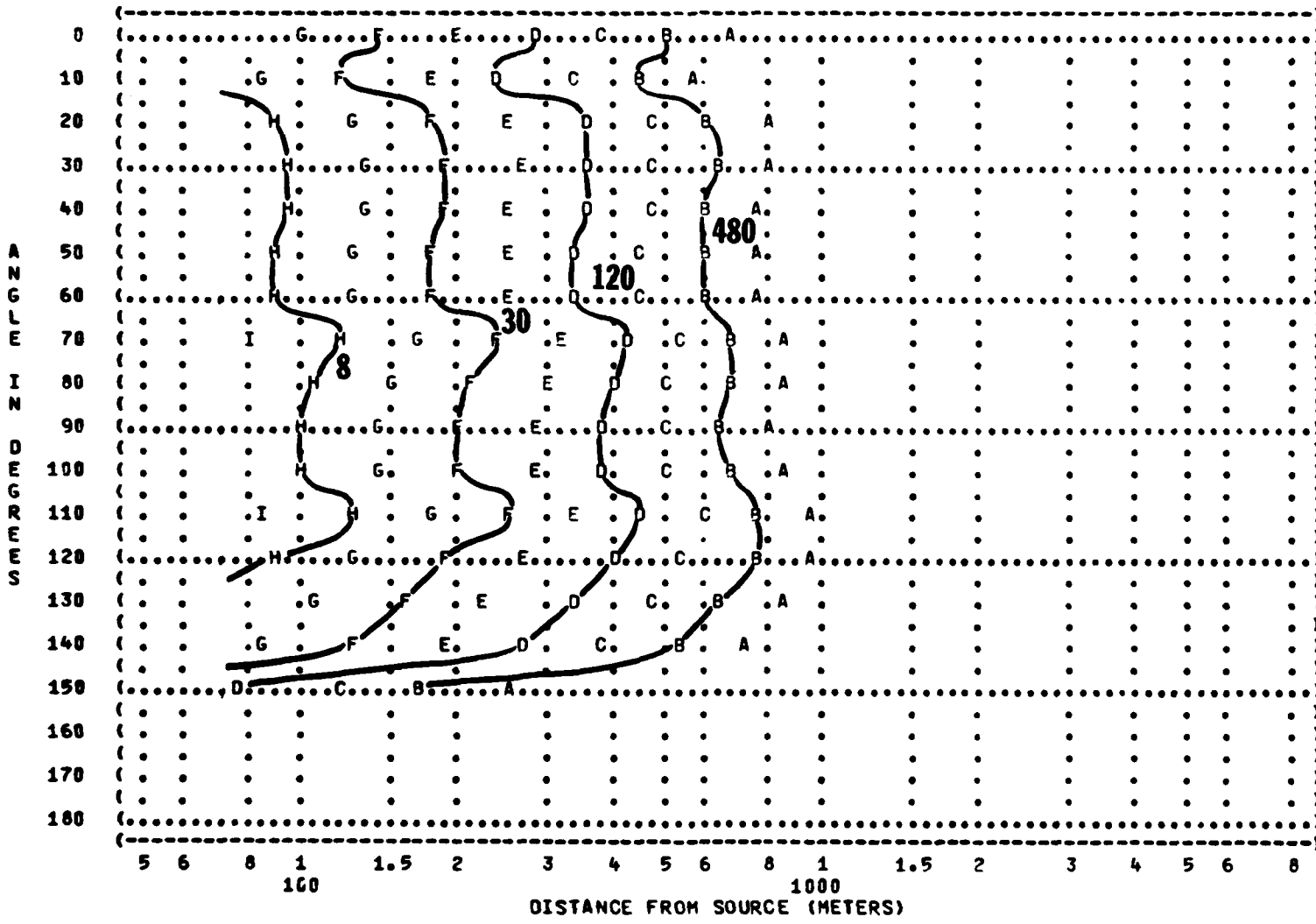
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
24 JAN 79
PAGE 7

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8
I	4

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-001
RUN 03
18 SEP 78
PAGE 8

POINT	MIN
A	960
B	480
C	240
D	120

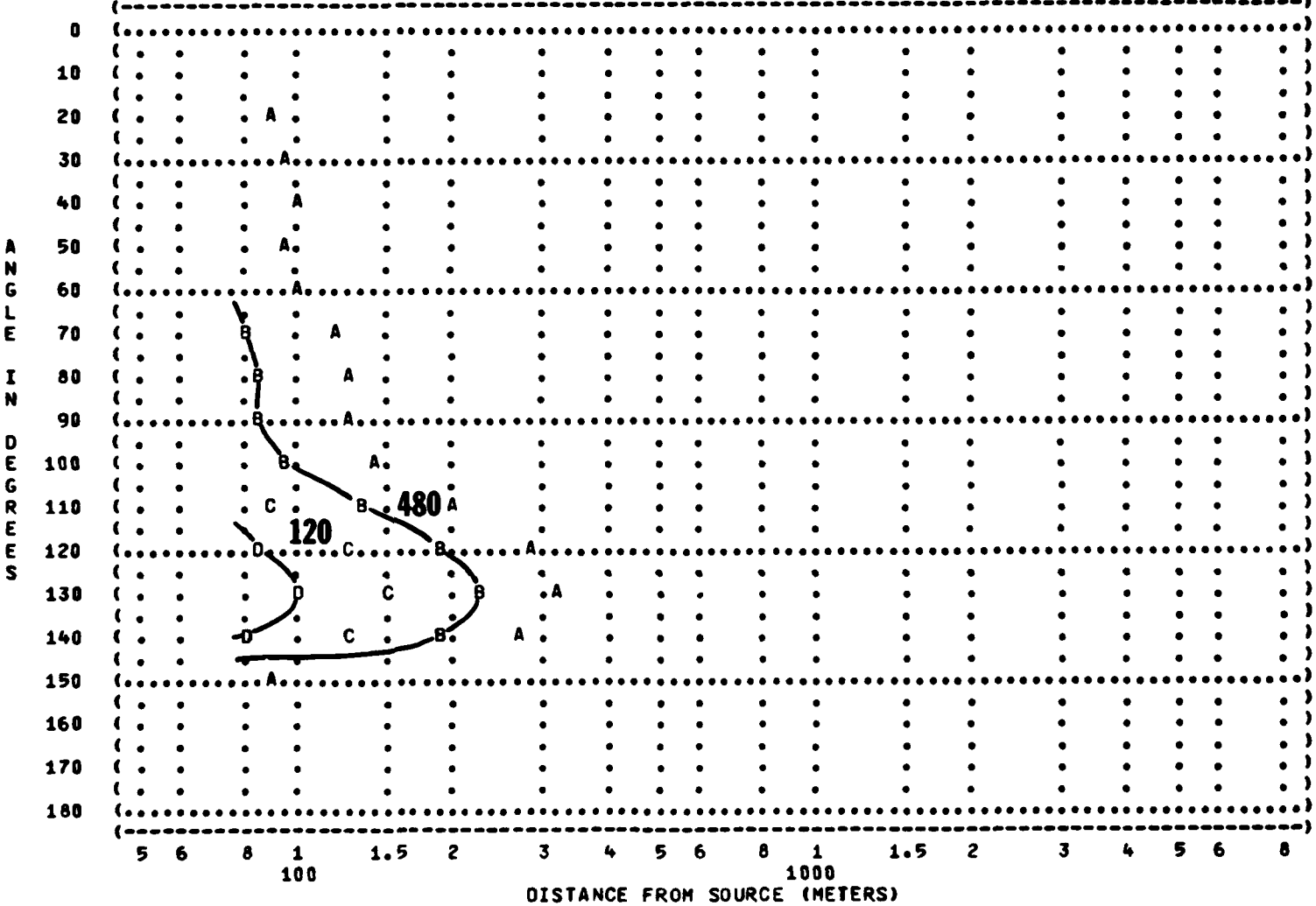


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 9

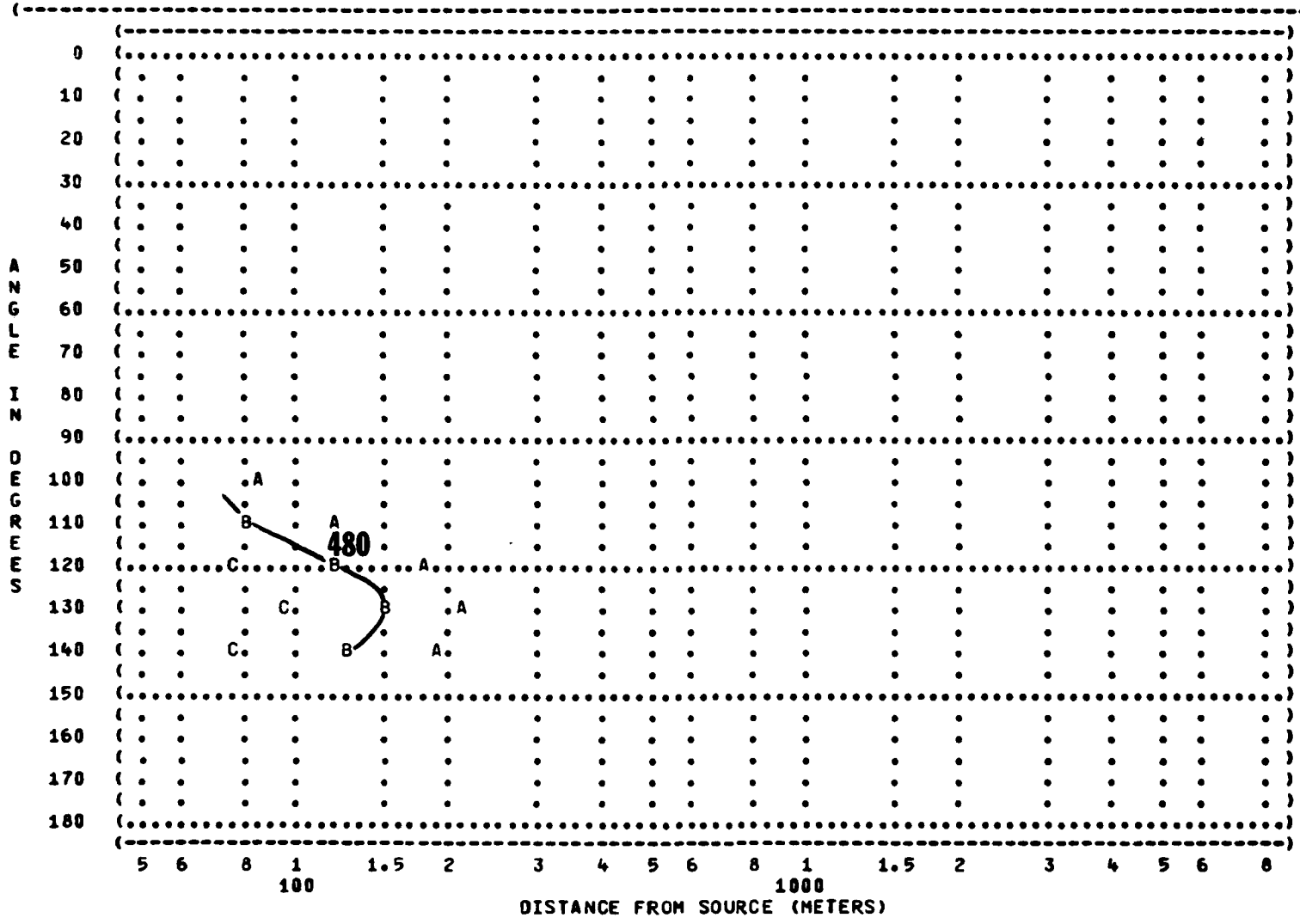


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 10

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480

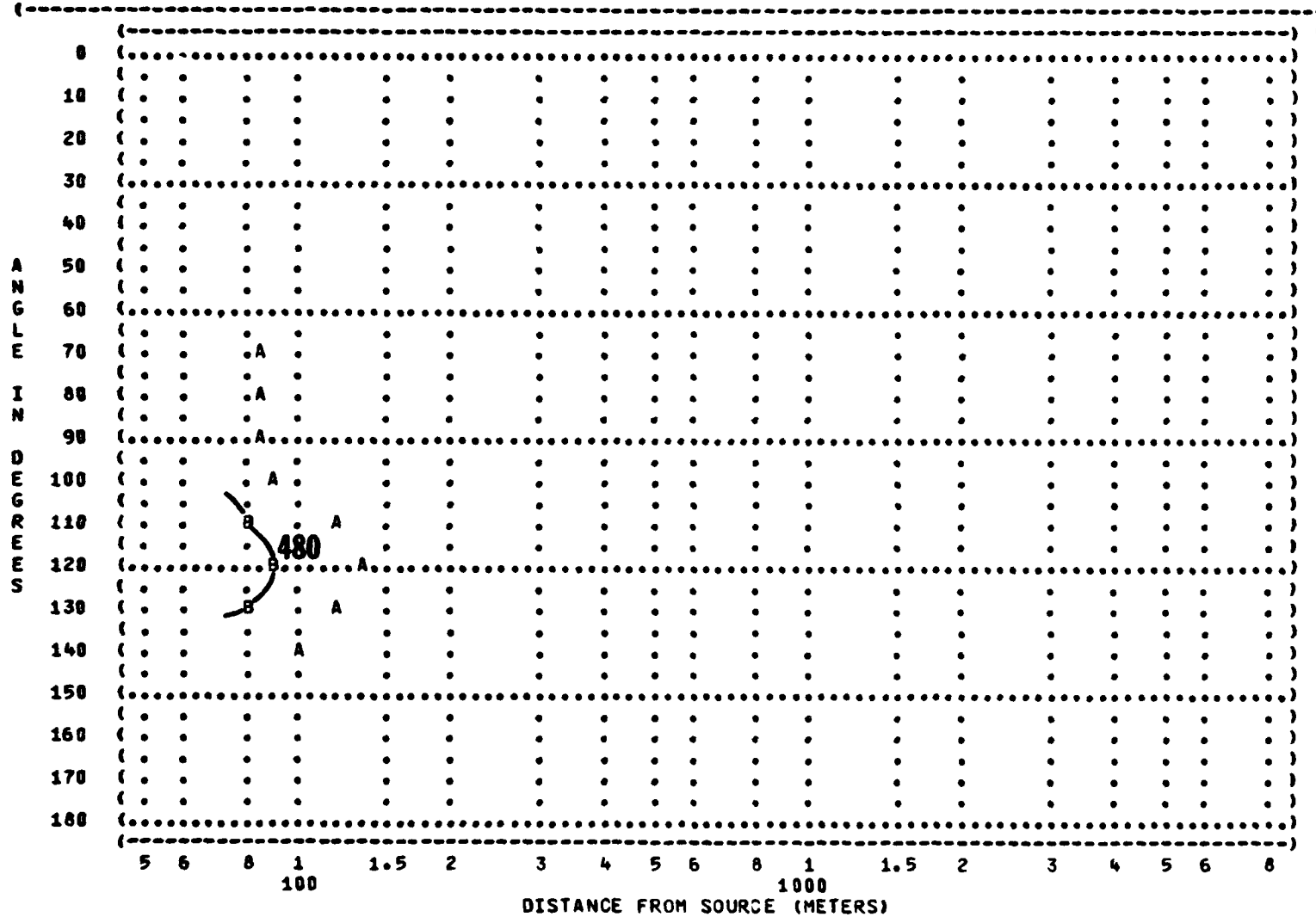


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 03 18 SEP 78 PAGE 11

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

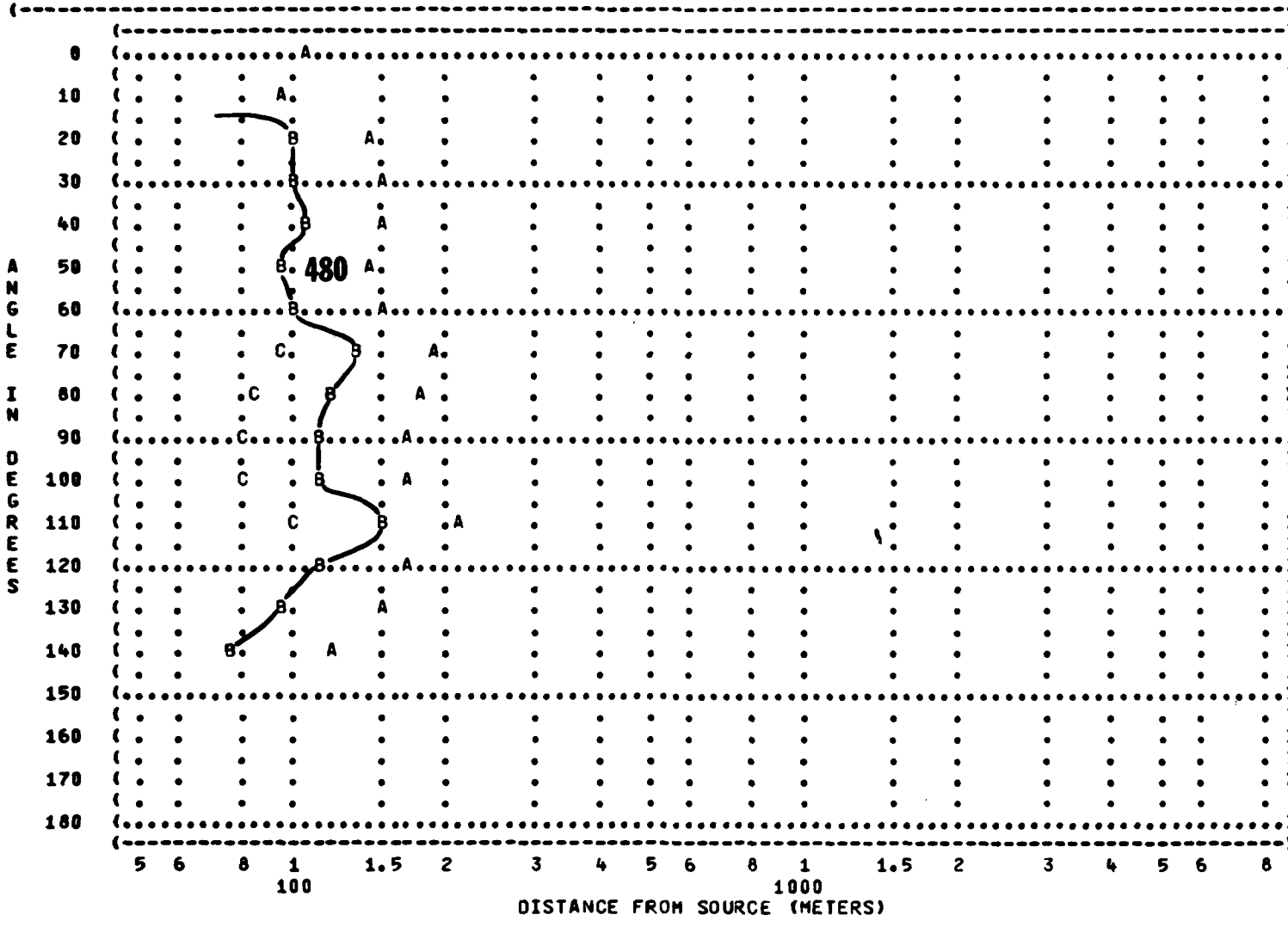


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-001
RUN 03
18 SEP 78
PAGE 12

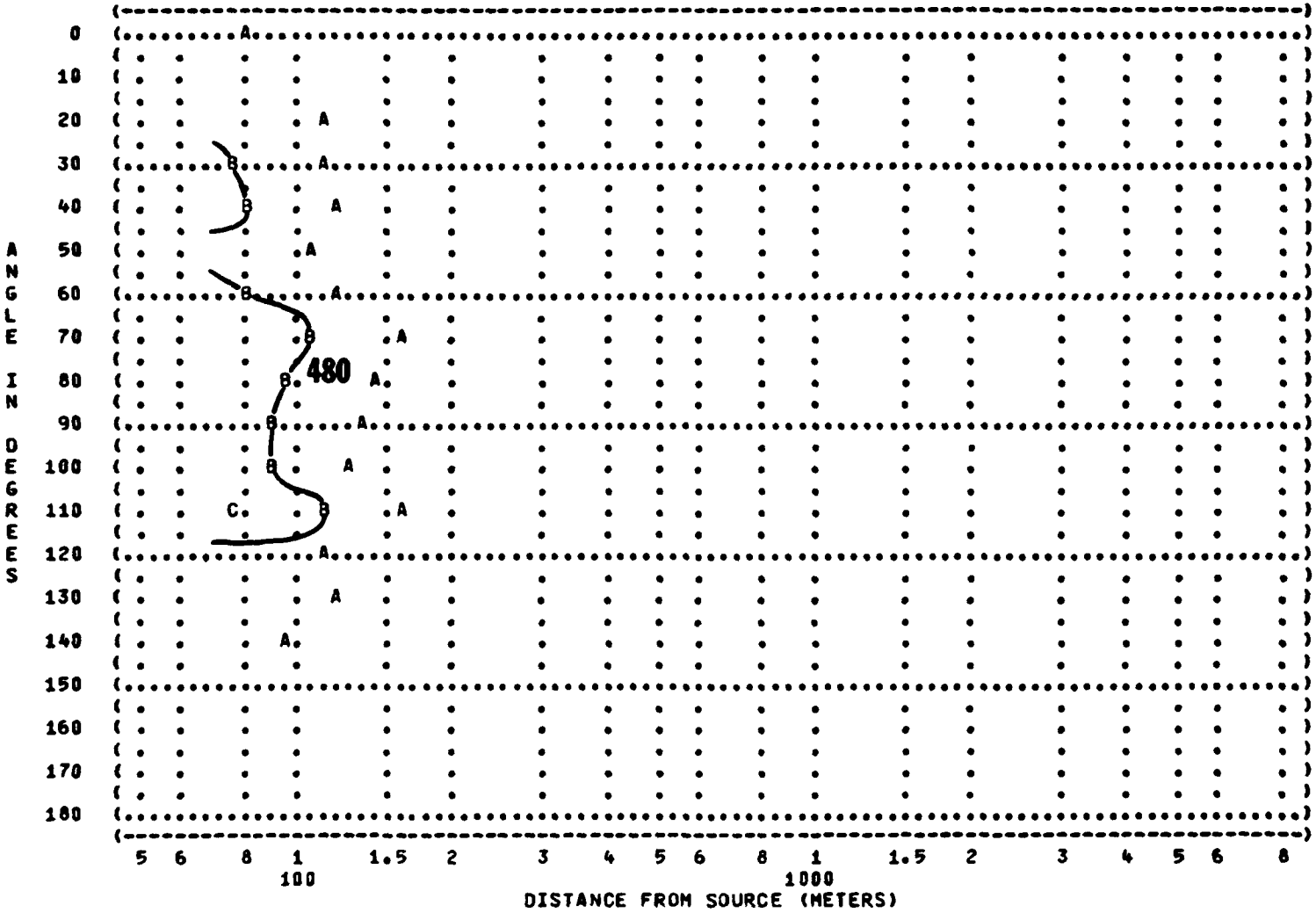


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

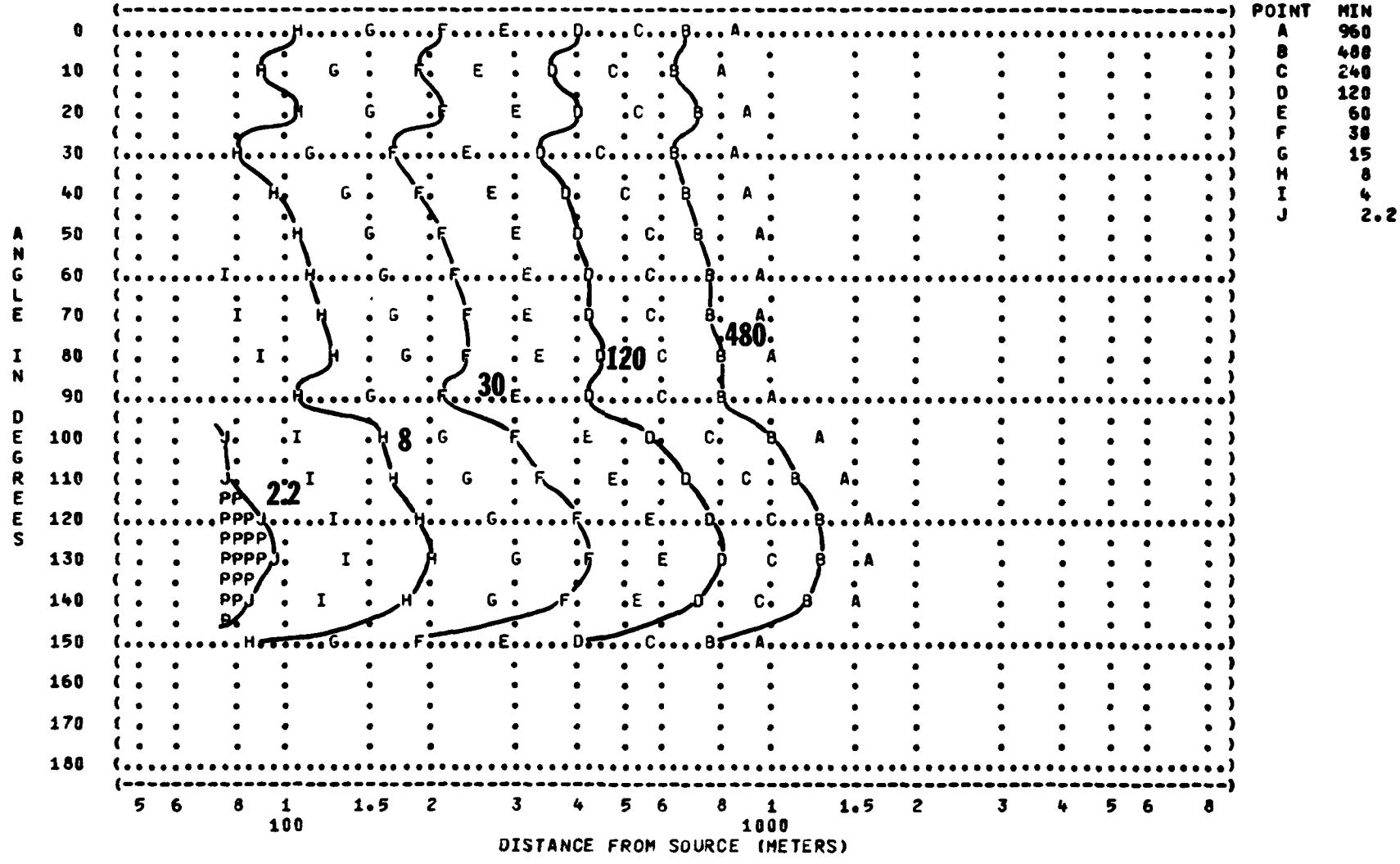
IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 7

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8
I	4
J	2.2



P ADDITIONAL EAR PROTECTION REQUIRED.

FIGURE: 10

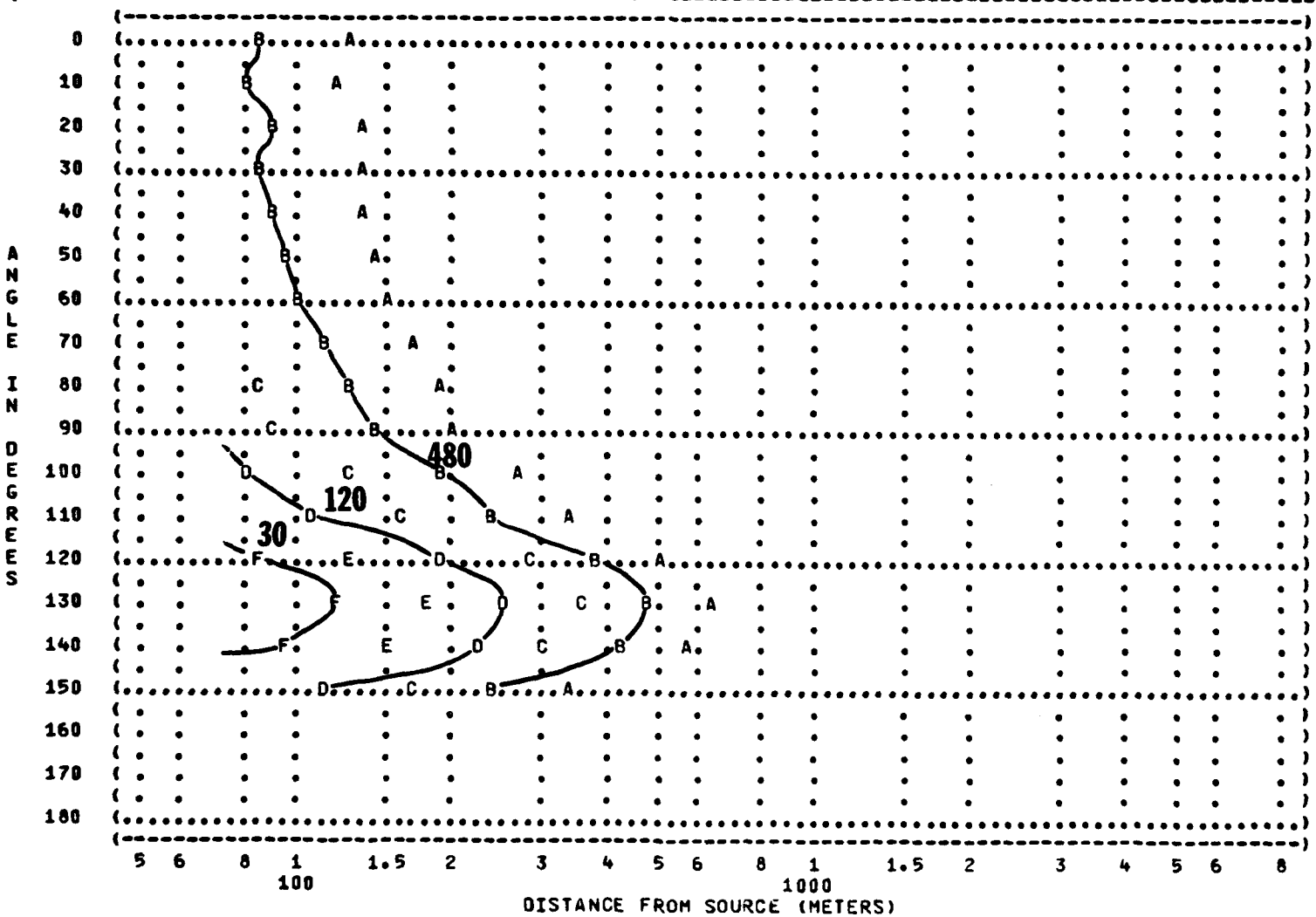
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 8

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30

FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 9

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480
C	240
D	120
E	60

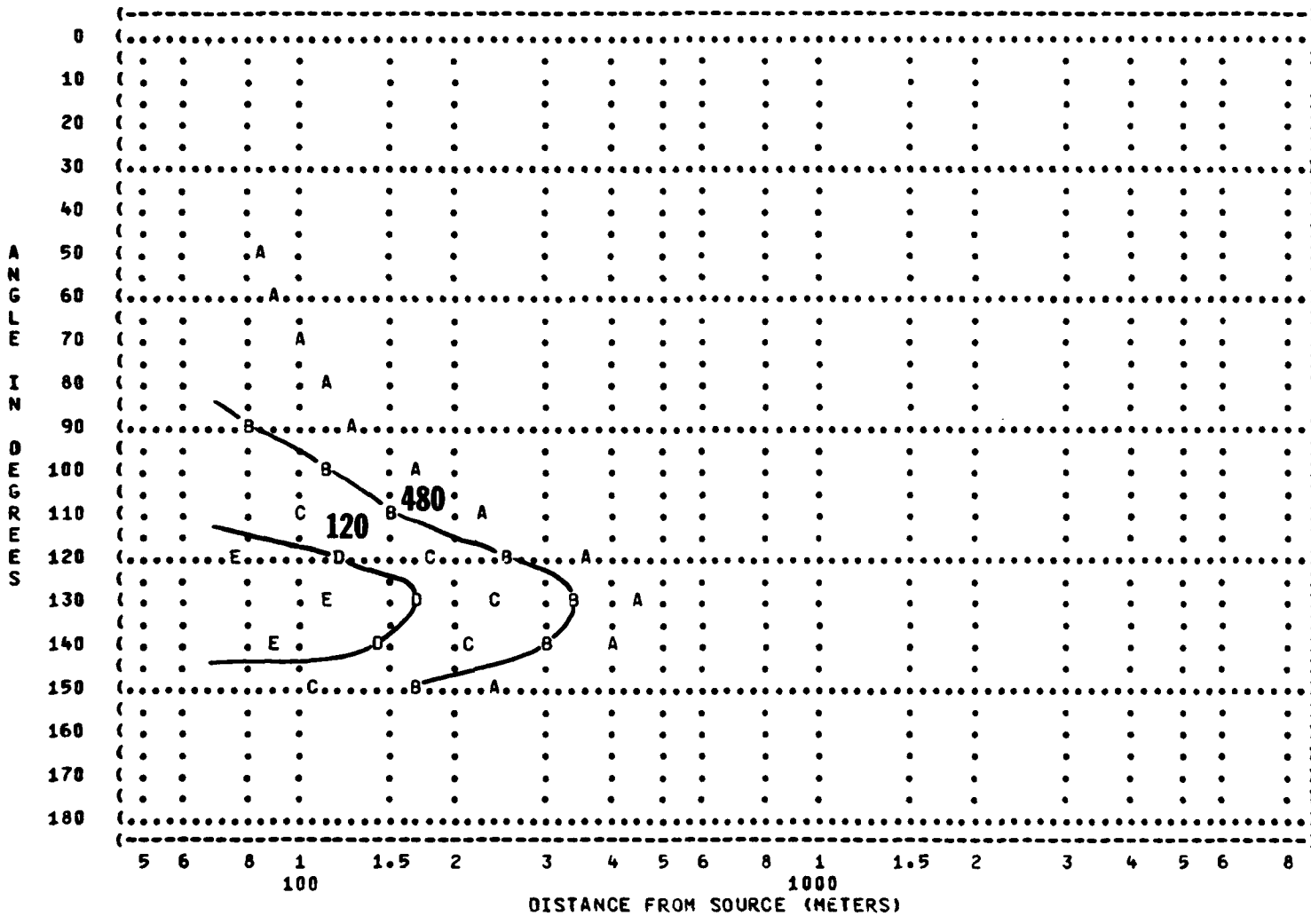


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 10

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480
C	240
D	120

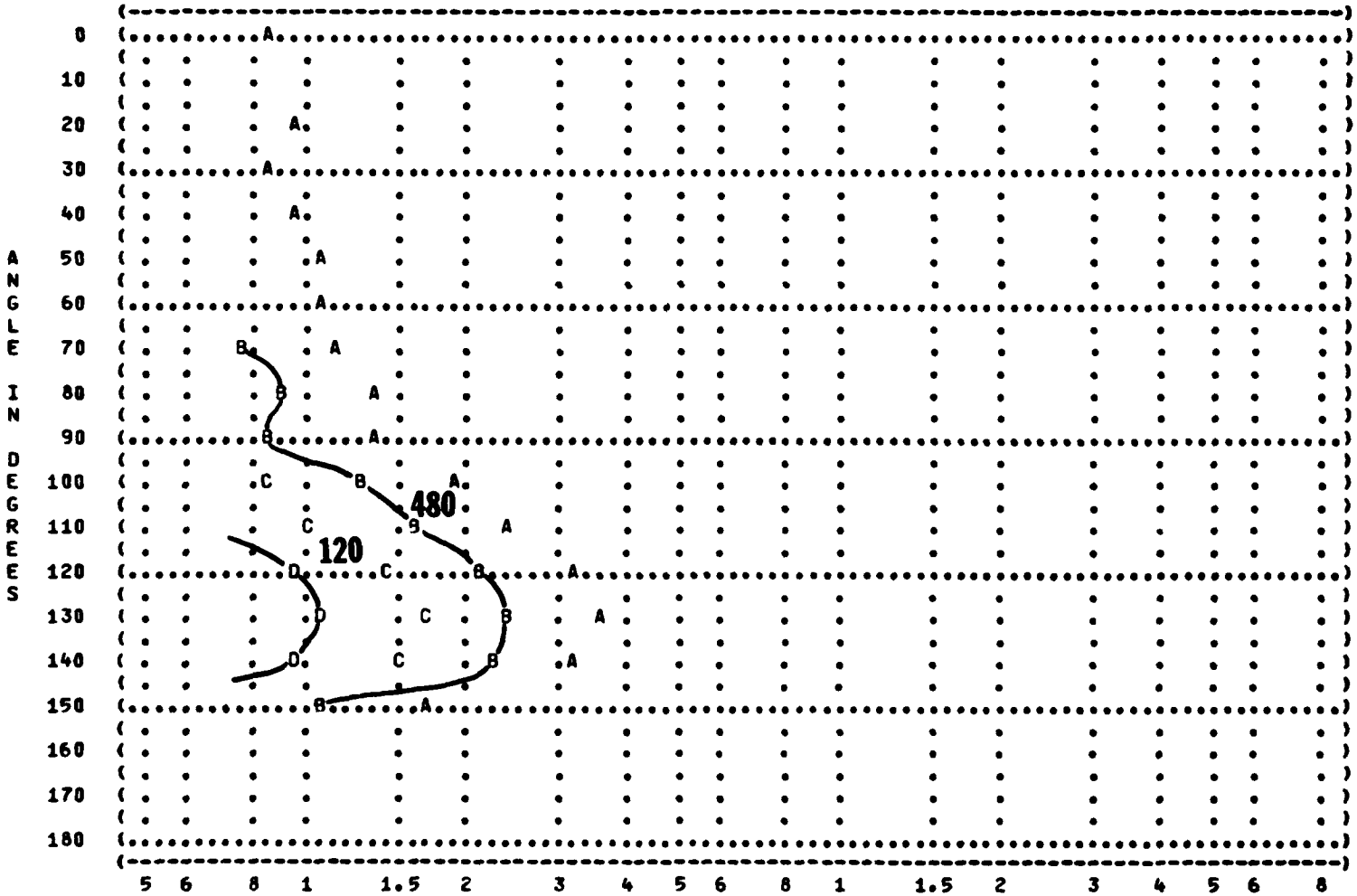


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 11

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

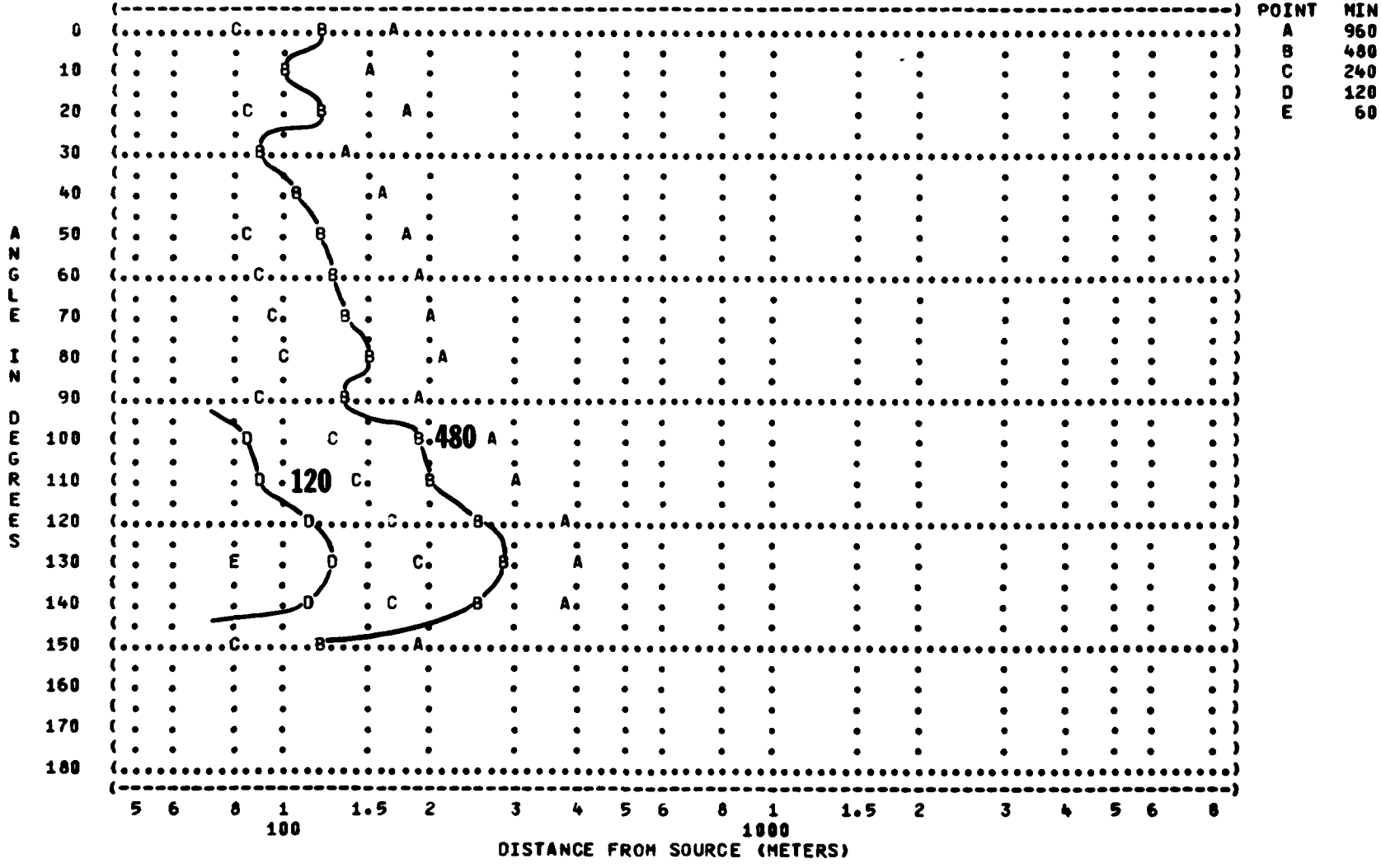


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 12

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480
C	240
D	120

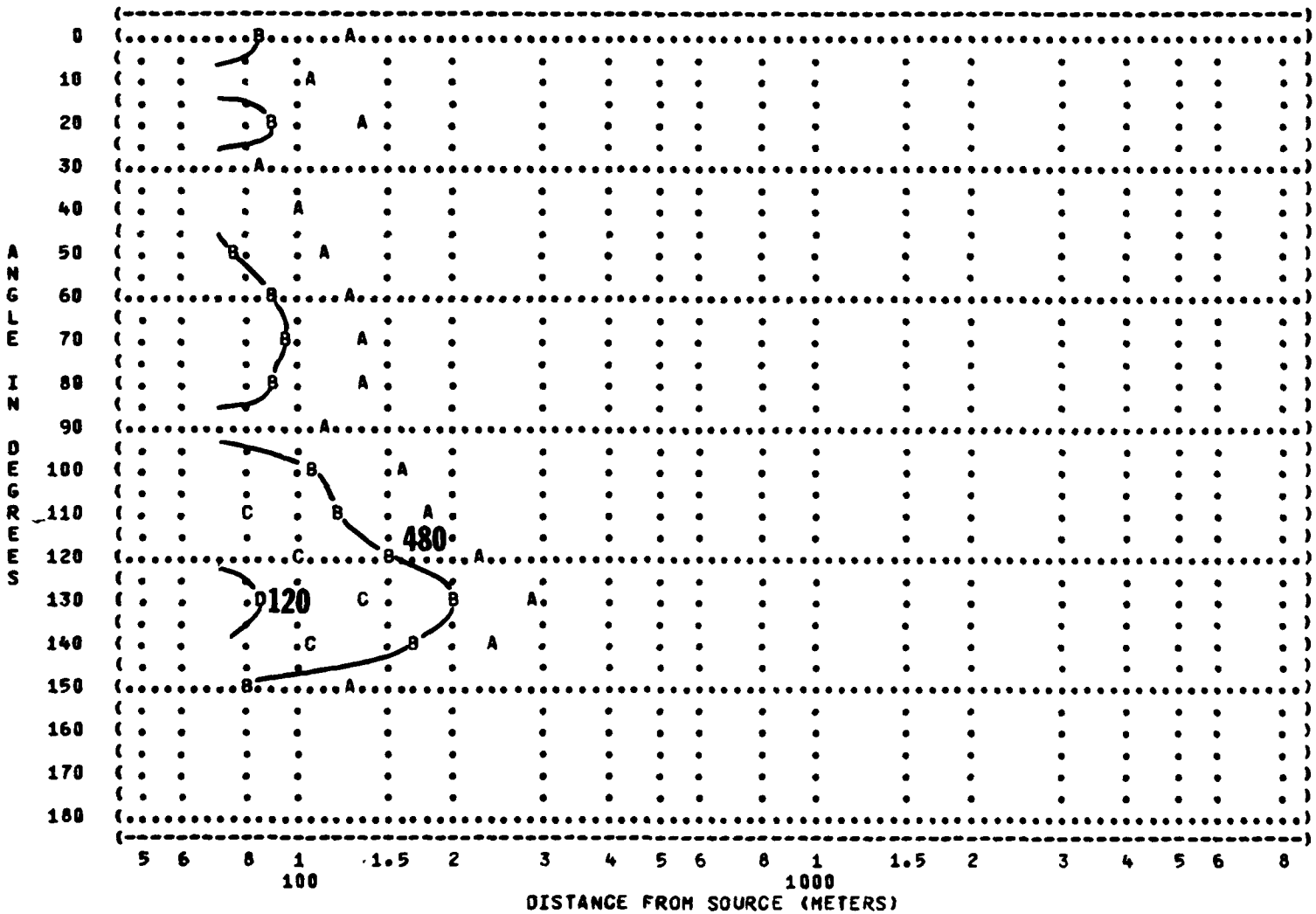


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-C01
RUN 01
18 SEP 78
PAGE 18

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70

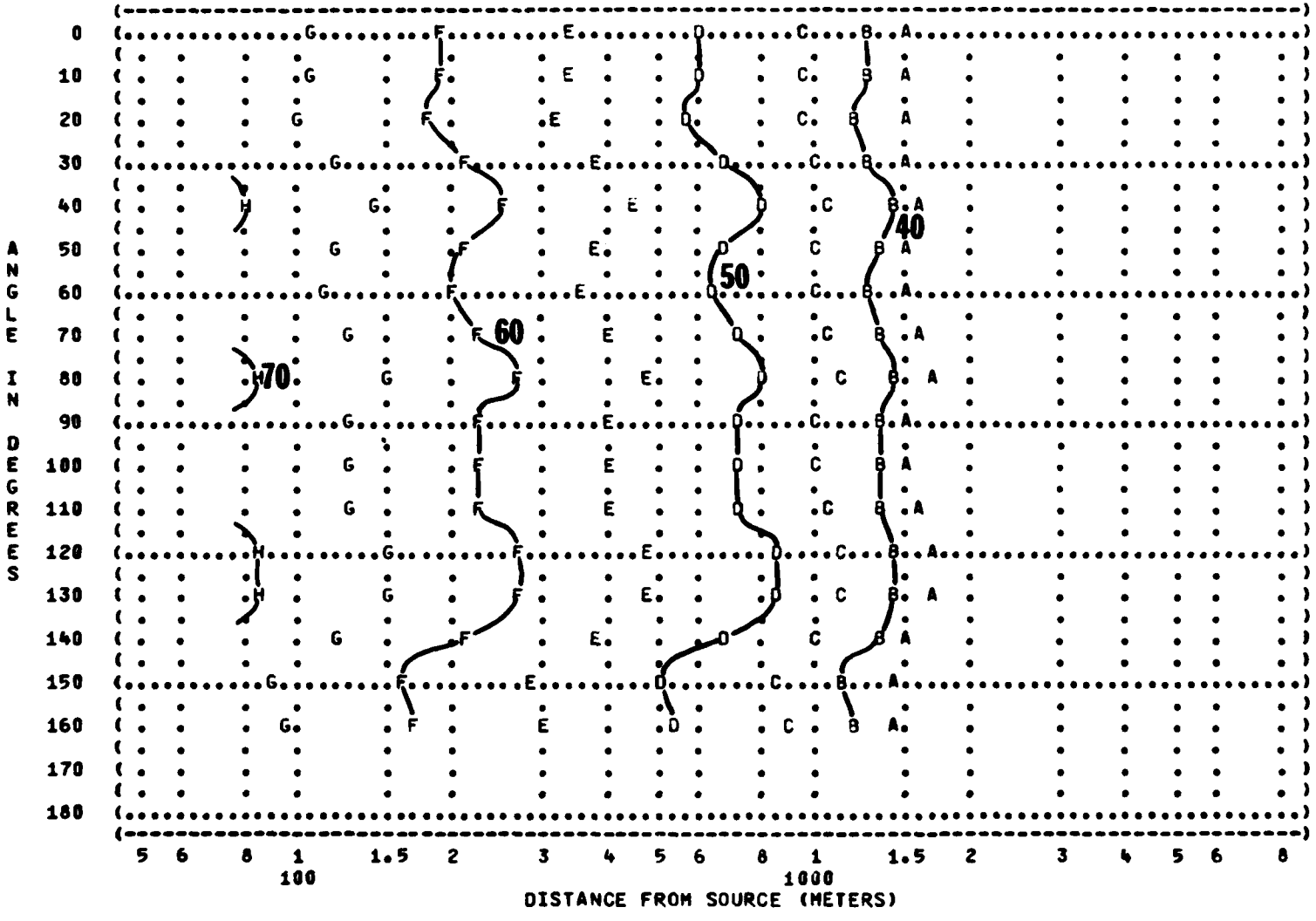


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 19

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

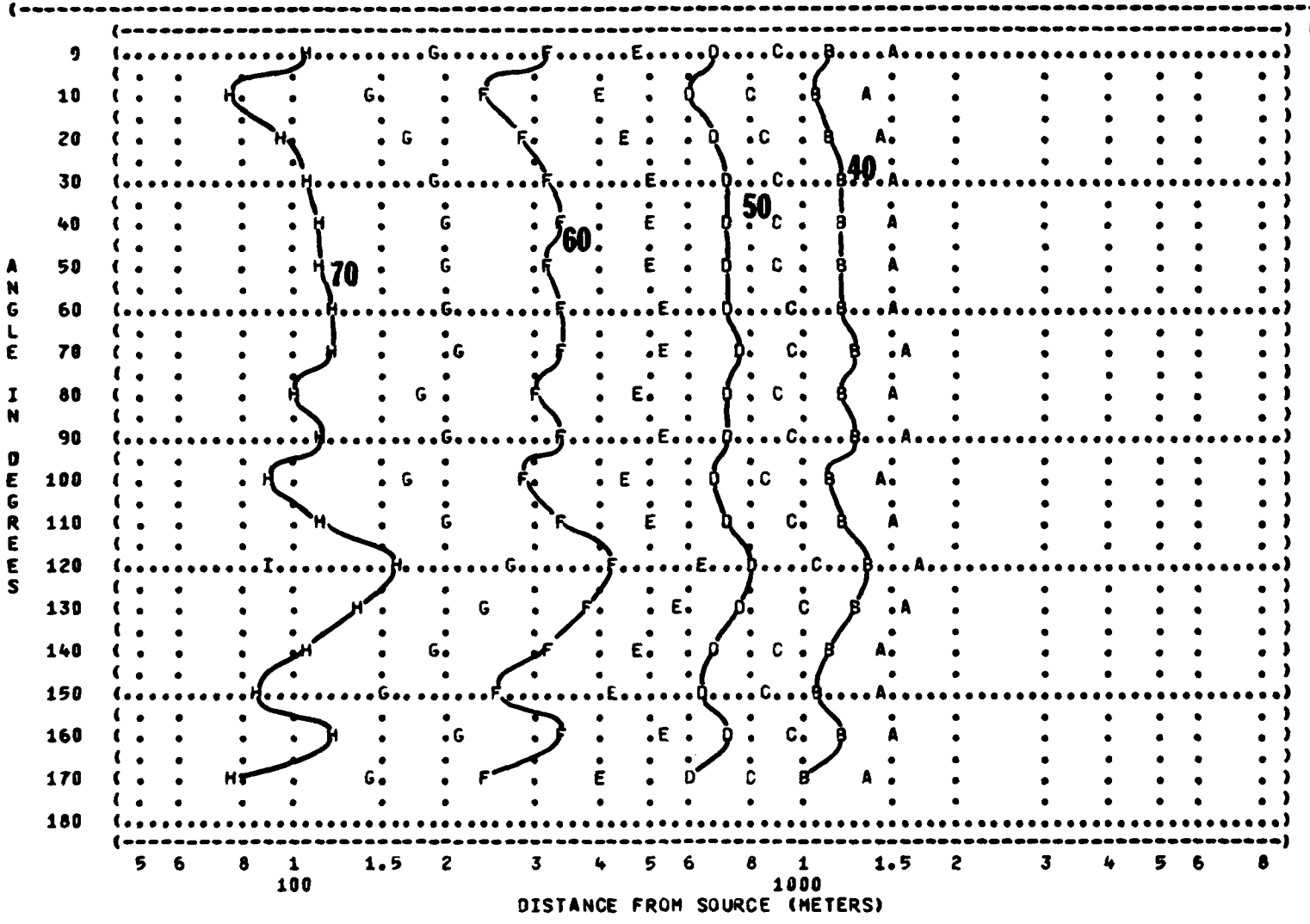


FIGURE: 11

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 20

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70

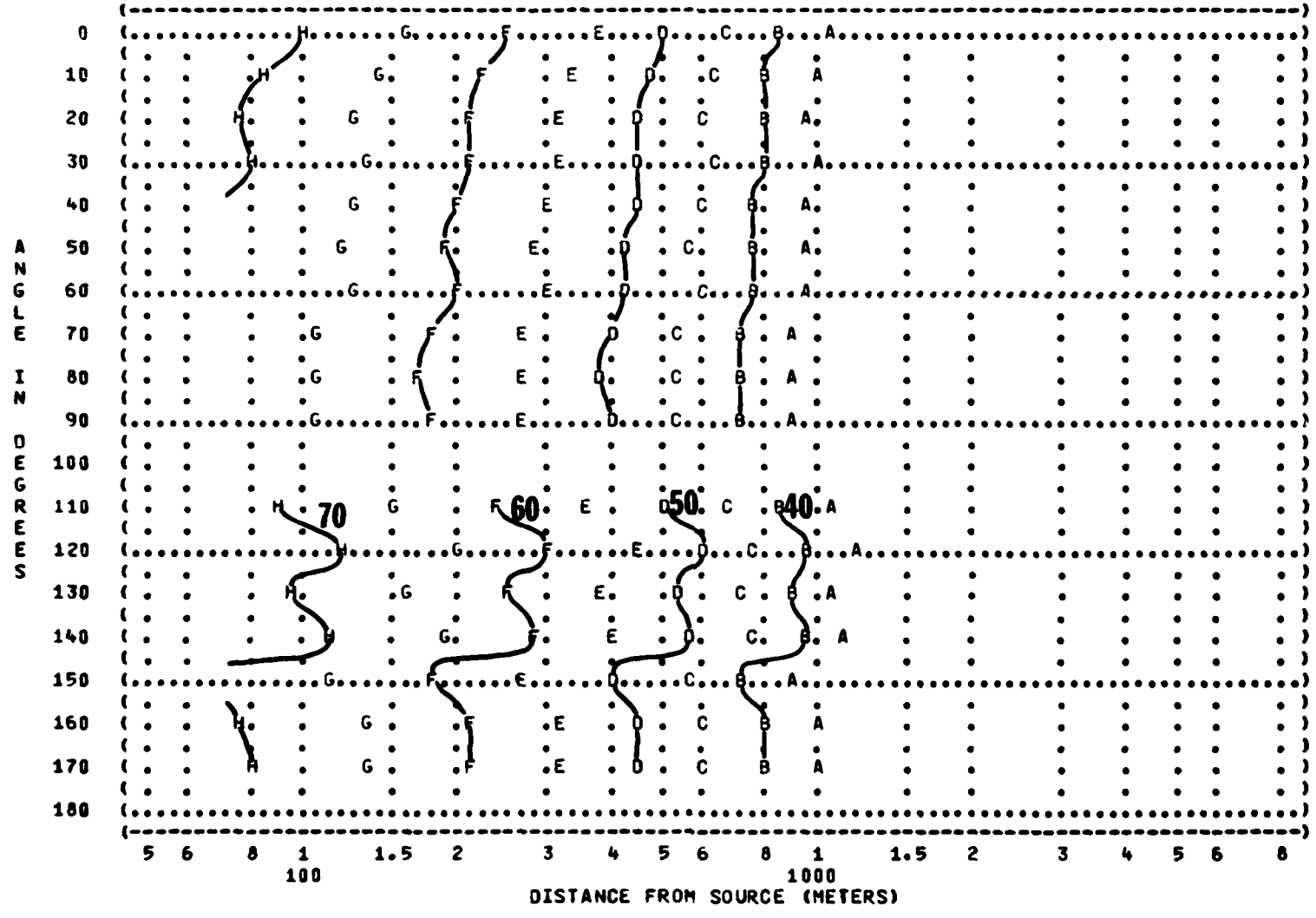


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 21

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

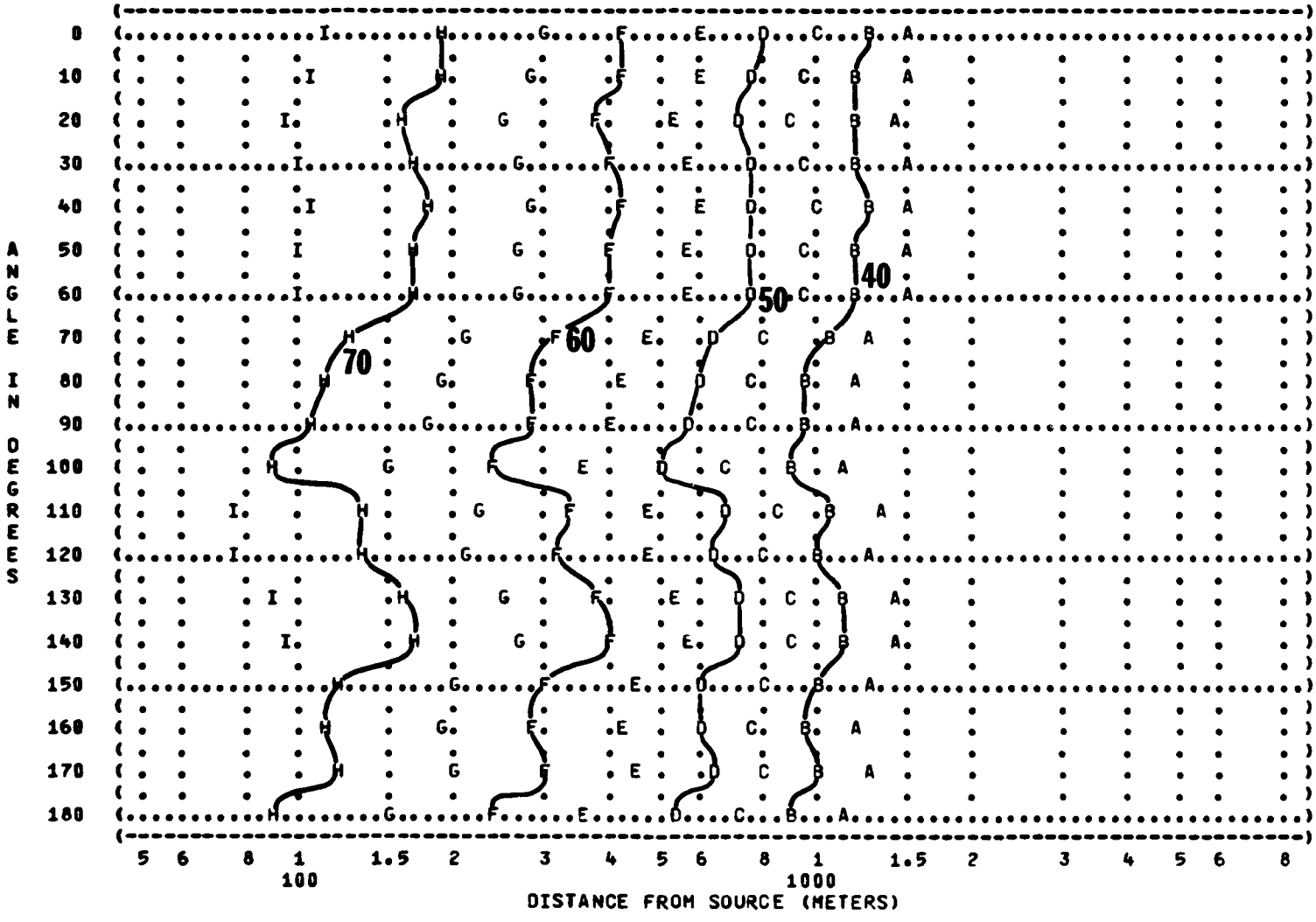


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 01 18 SEP 78 PAGE 22

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85

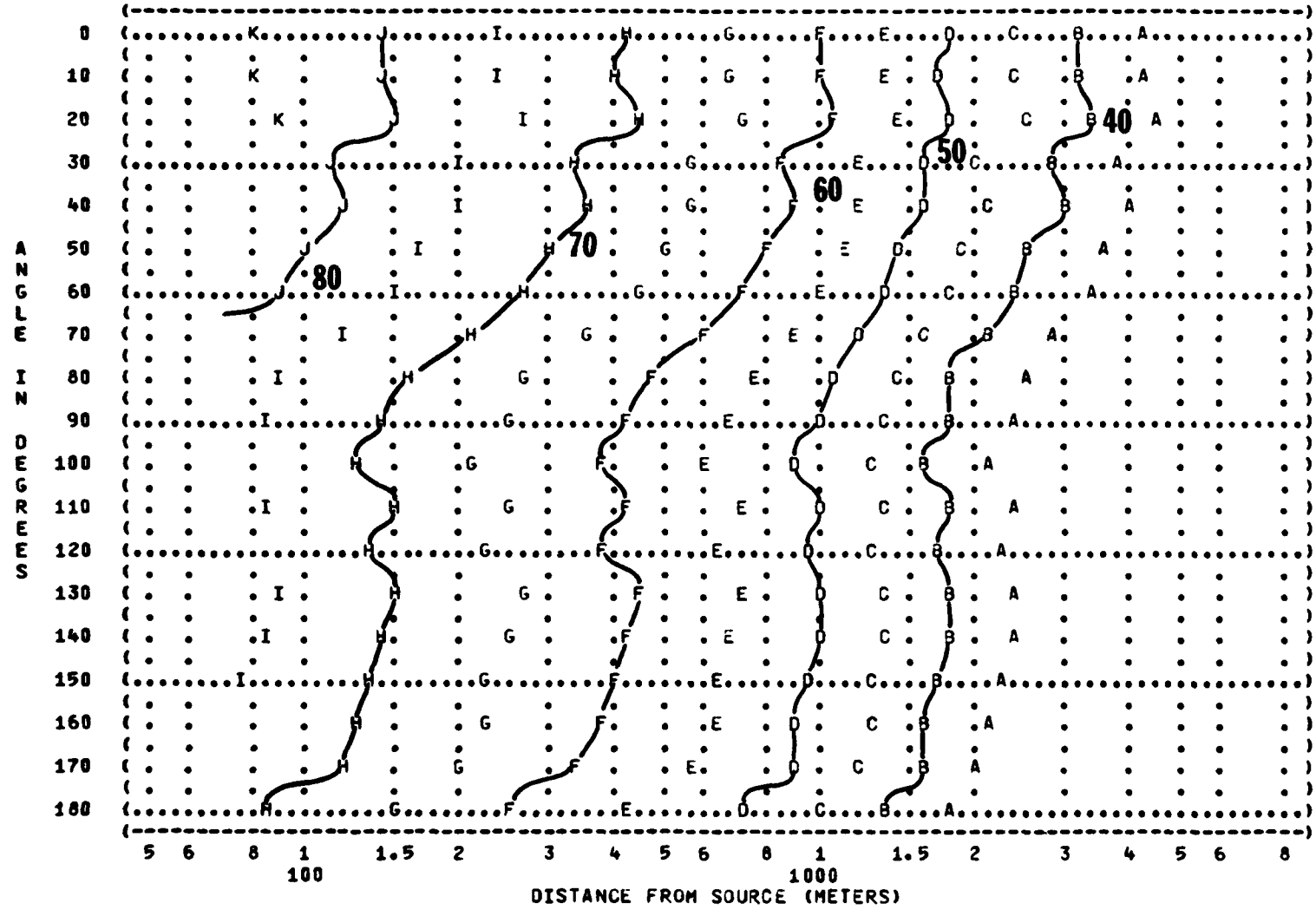


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 01 18 SEP 78 PAGE 23

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85

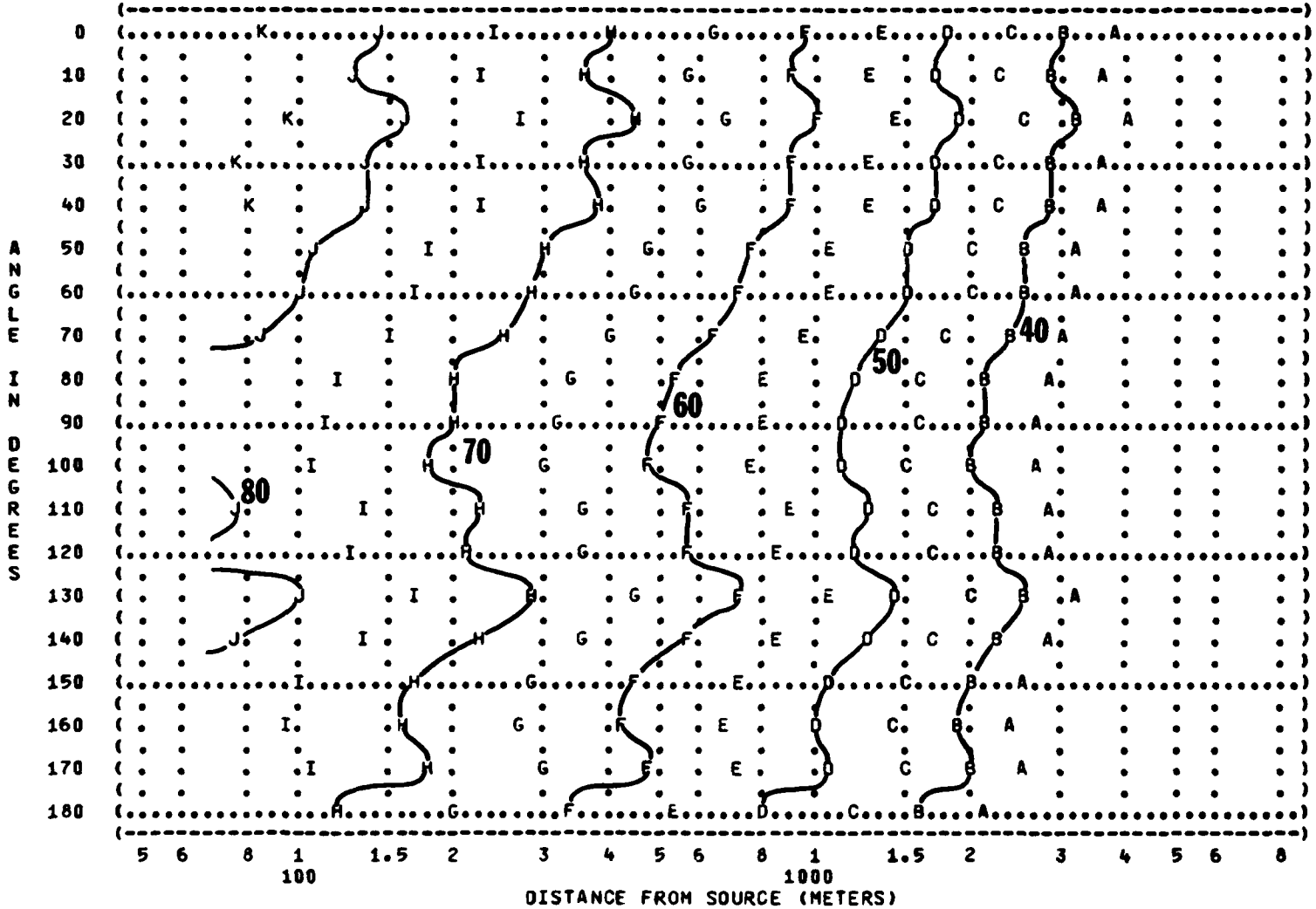


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 01 18 SEP 78 PAGE 24

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

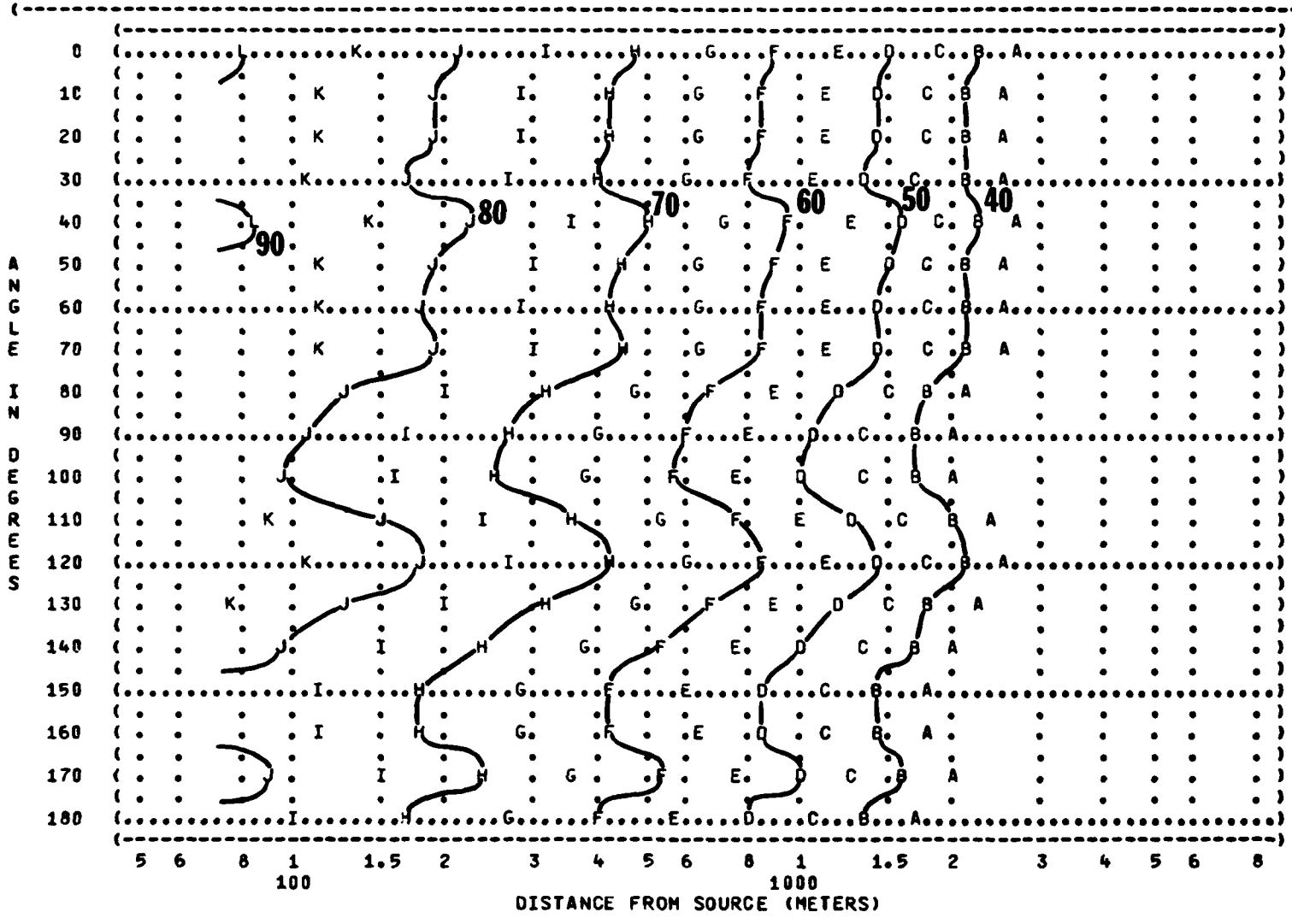


FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
IDLE 28% RPM
TWO ENGINES, NO2 AND 3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 01
18 SEP 78
PAGE 25

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85

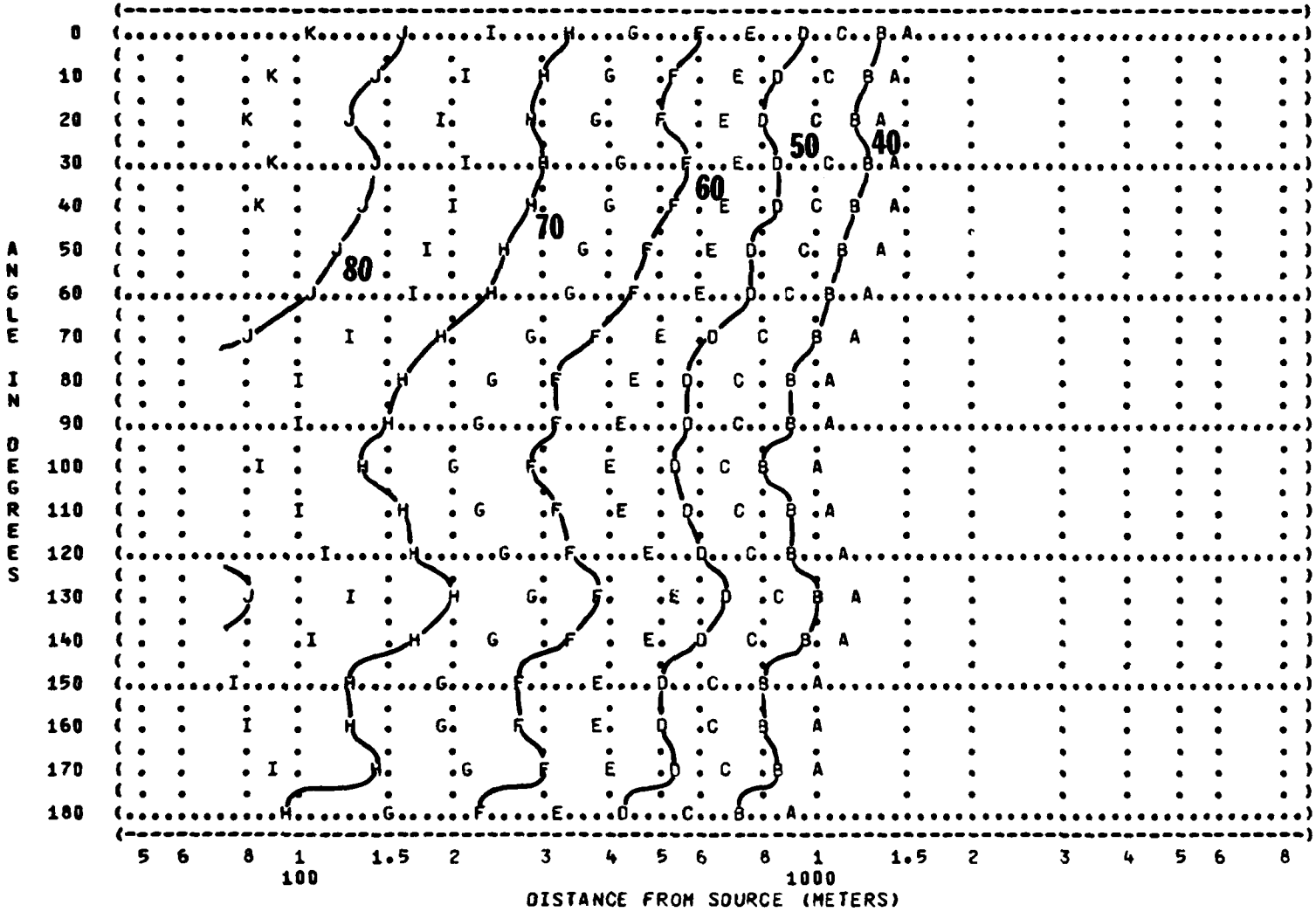


FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 01 18 SEP 78 PAGE 26

NOISE SOURCE/SUBJECT: E-3A AIRCRAFT; TF33-P-100A ENGINE; FAR FIELD NOISE

OPERATION: IDLE 28% RPM; TWO ENGINES, NO2 AND 3; FREE FLOW

METEOROLOGY: TEMP = 15 C; BAR PRESS = .760 M HG; REL HUMID = 70 %

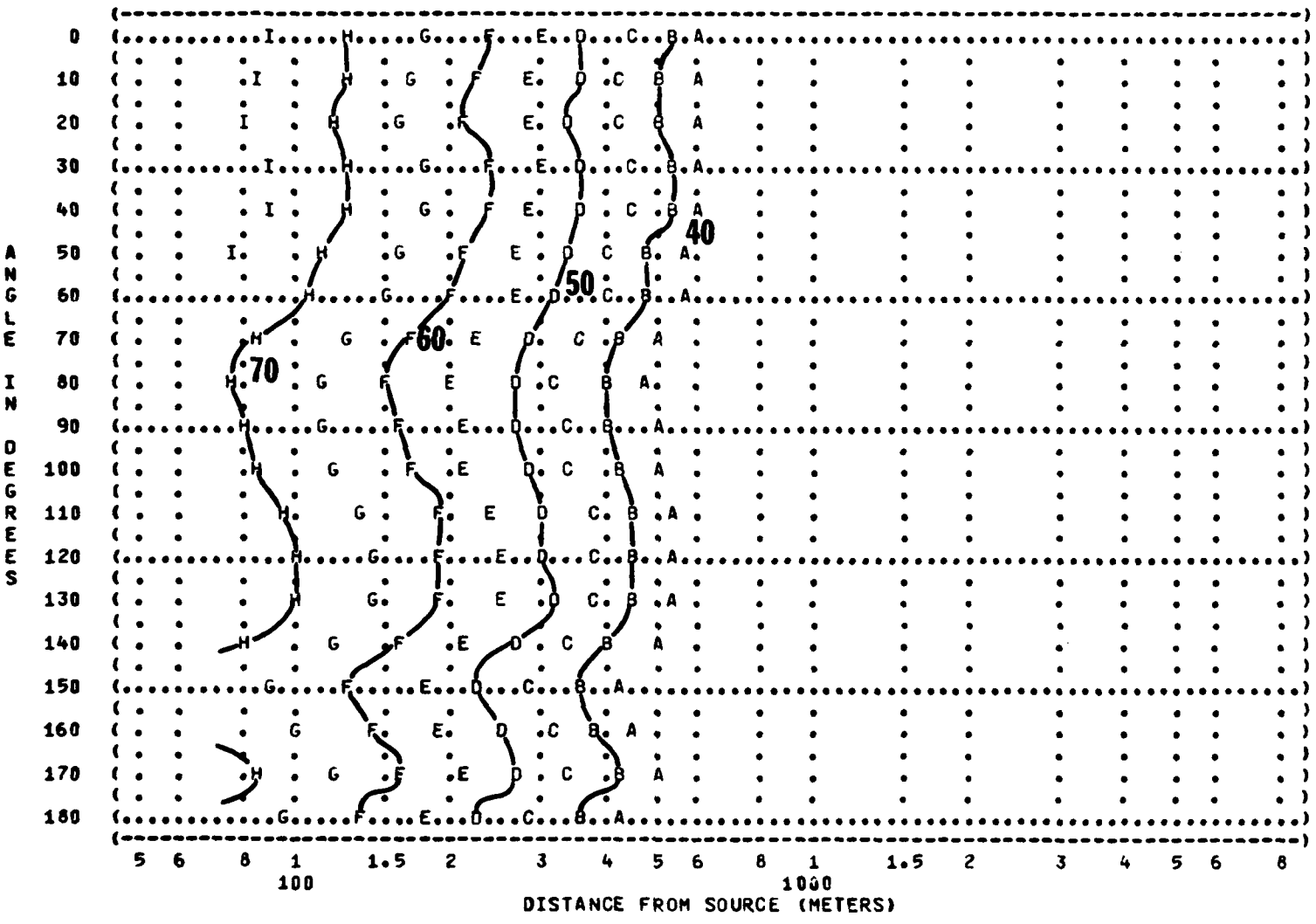


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 18

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90

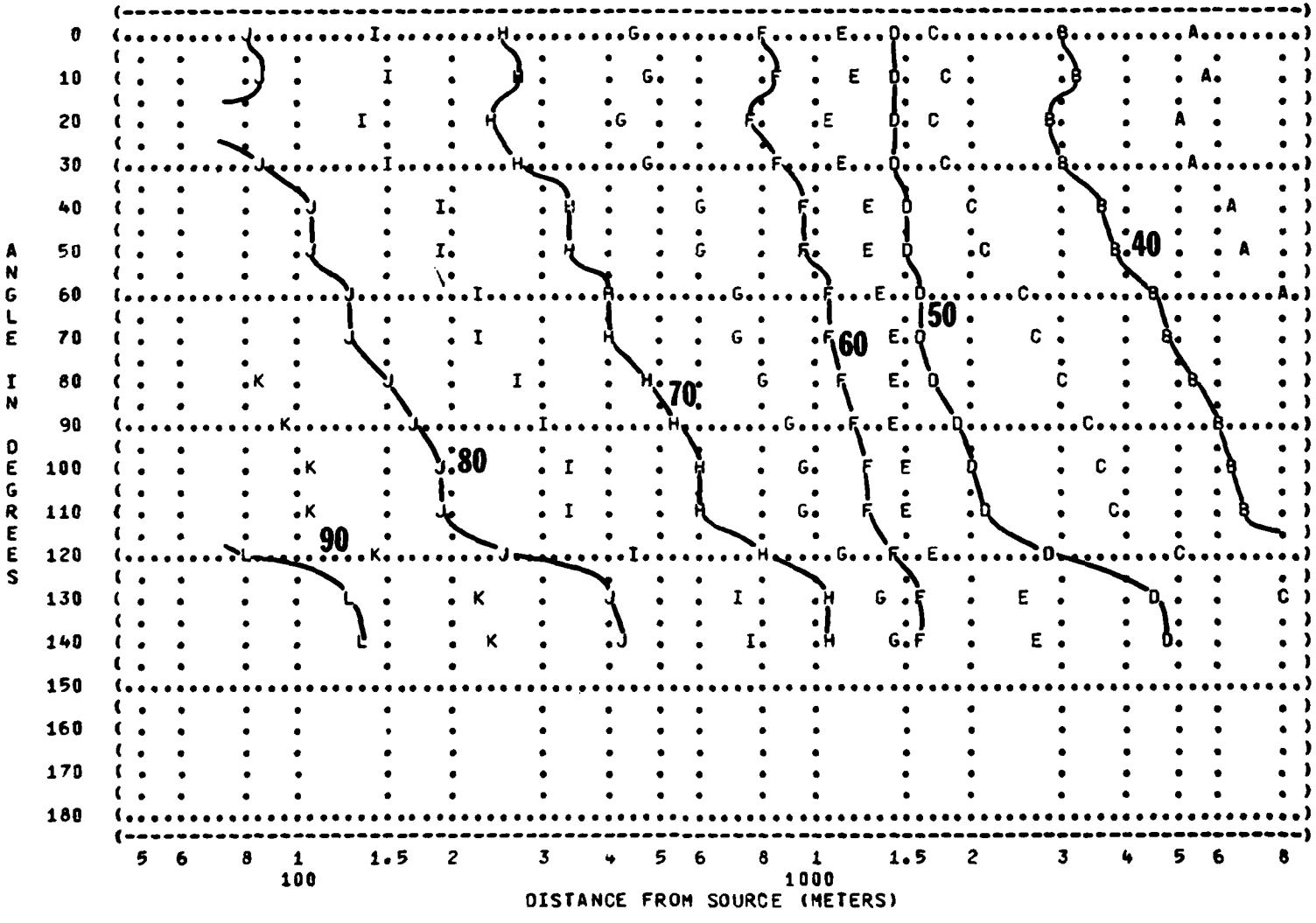


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 19

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

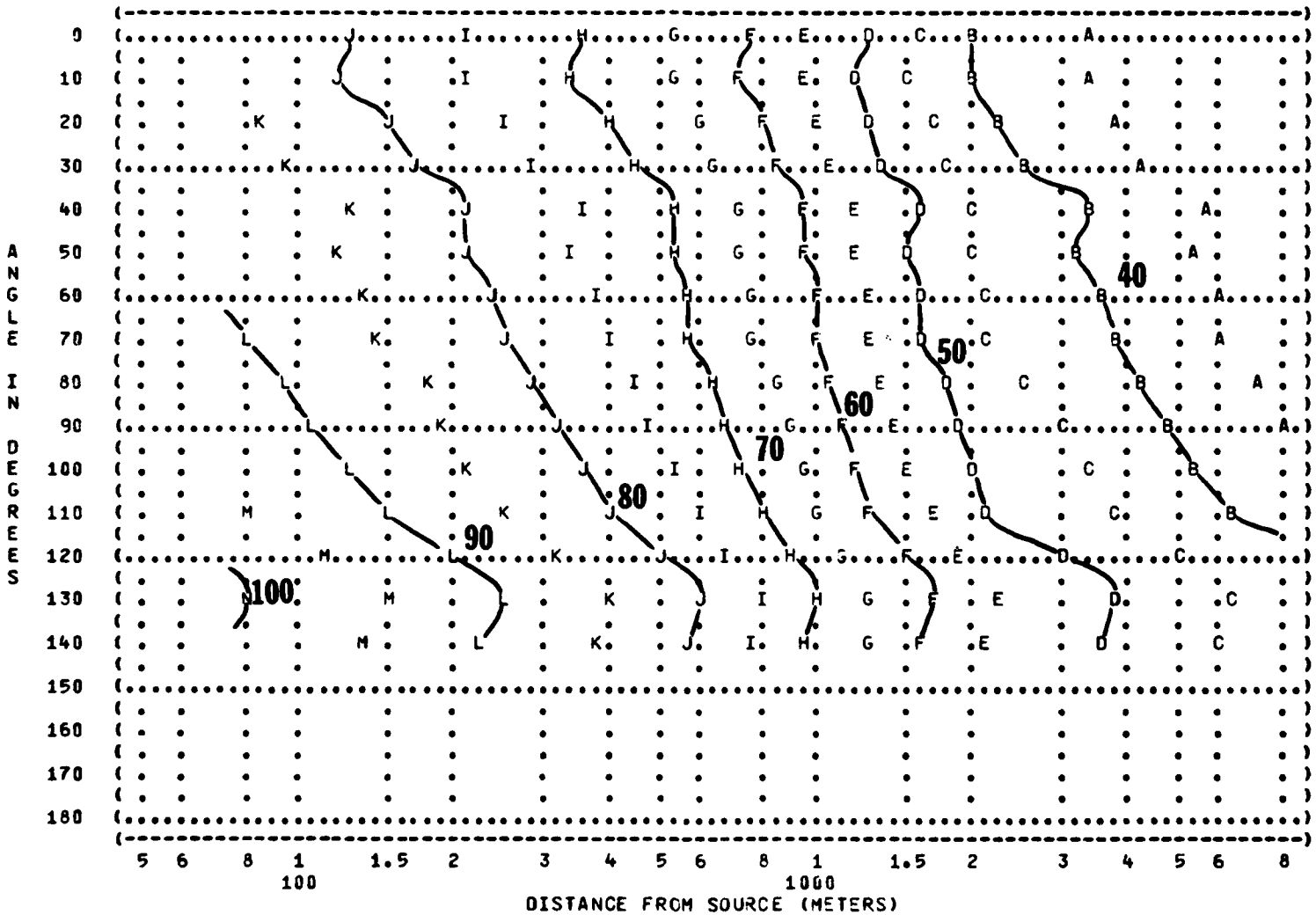


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 20

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

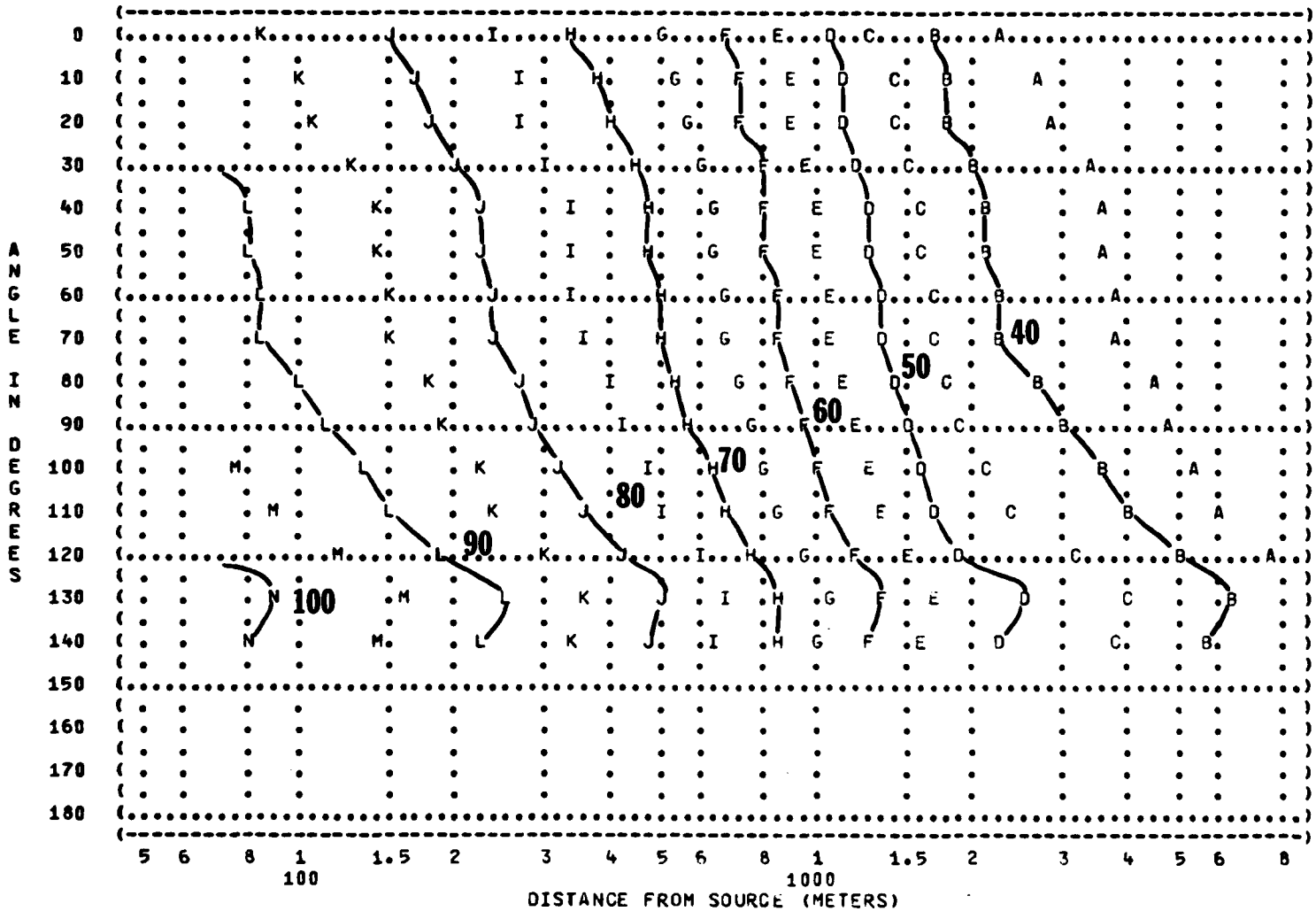


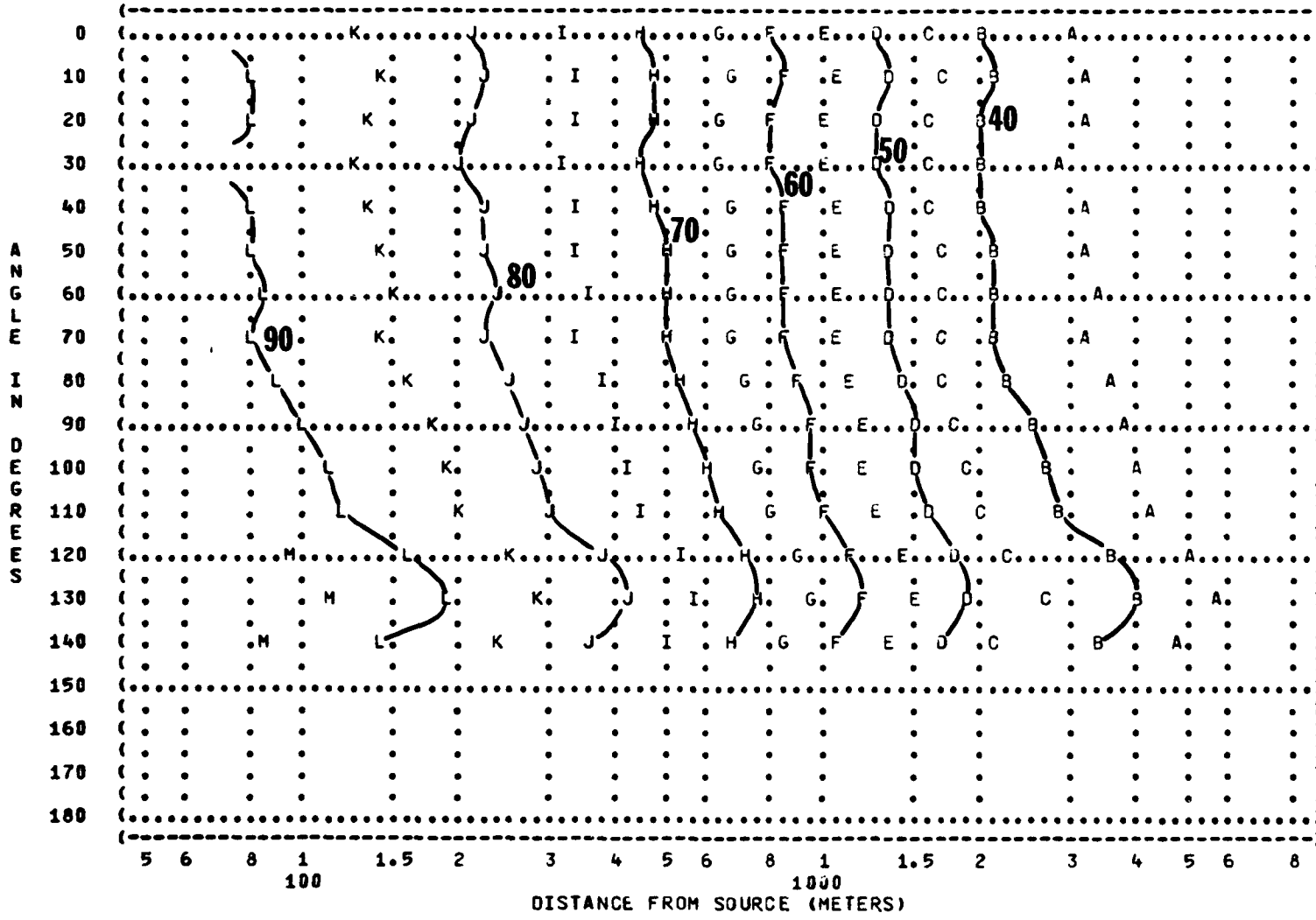
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 21

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

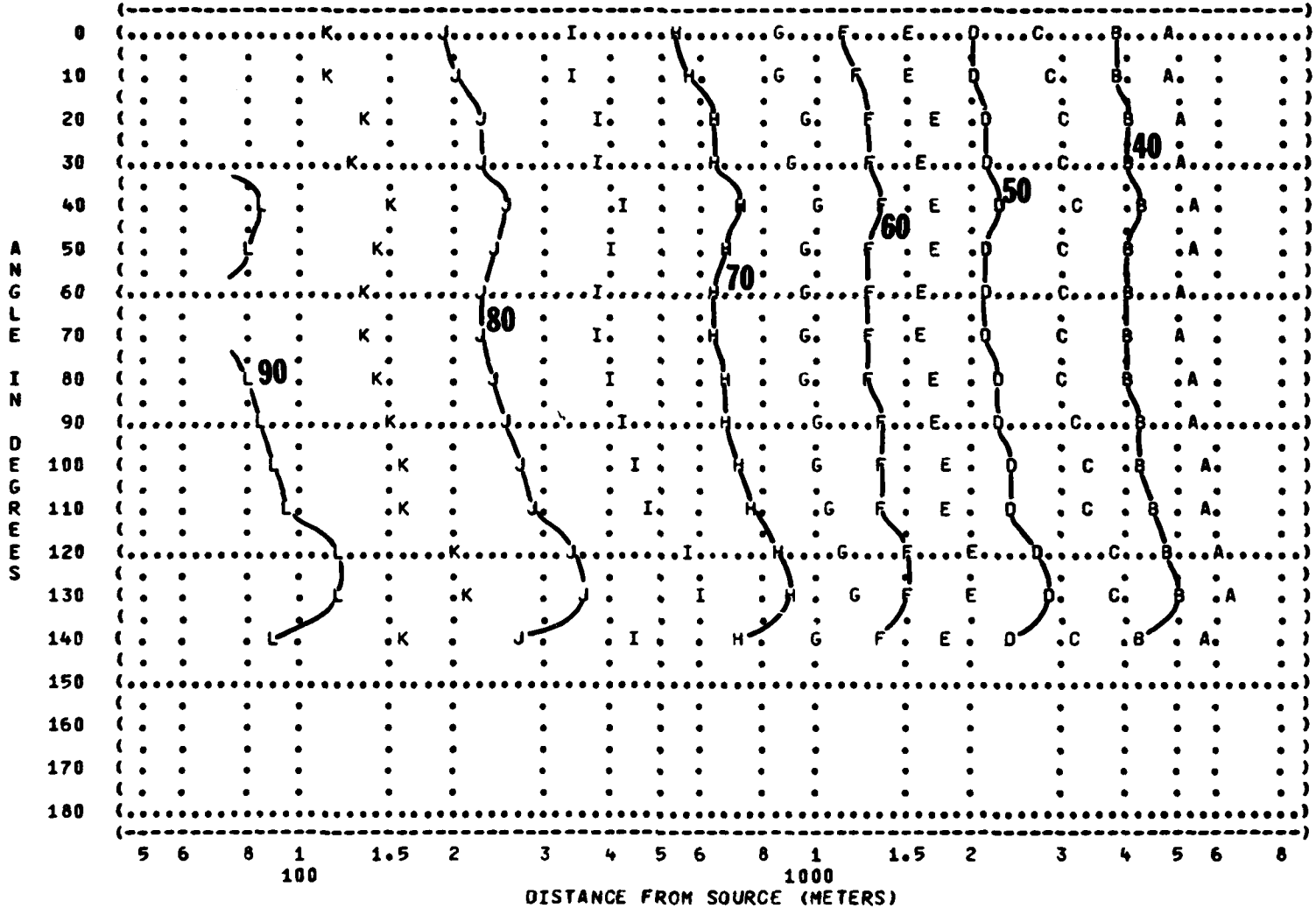
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-888-001 RUN 02 18 SEP 78 PAGE 22

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90

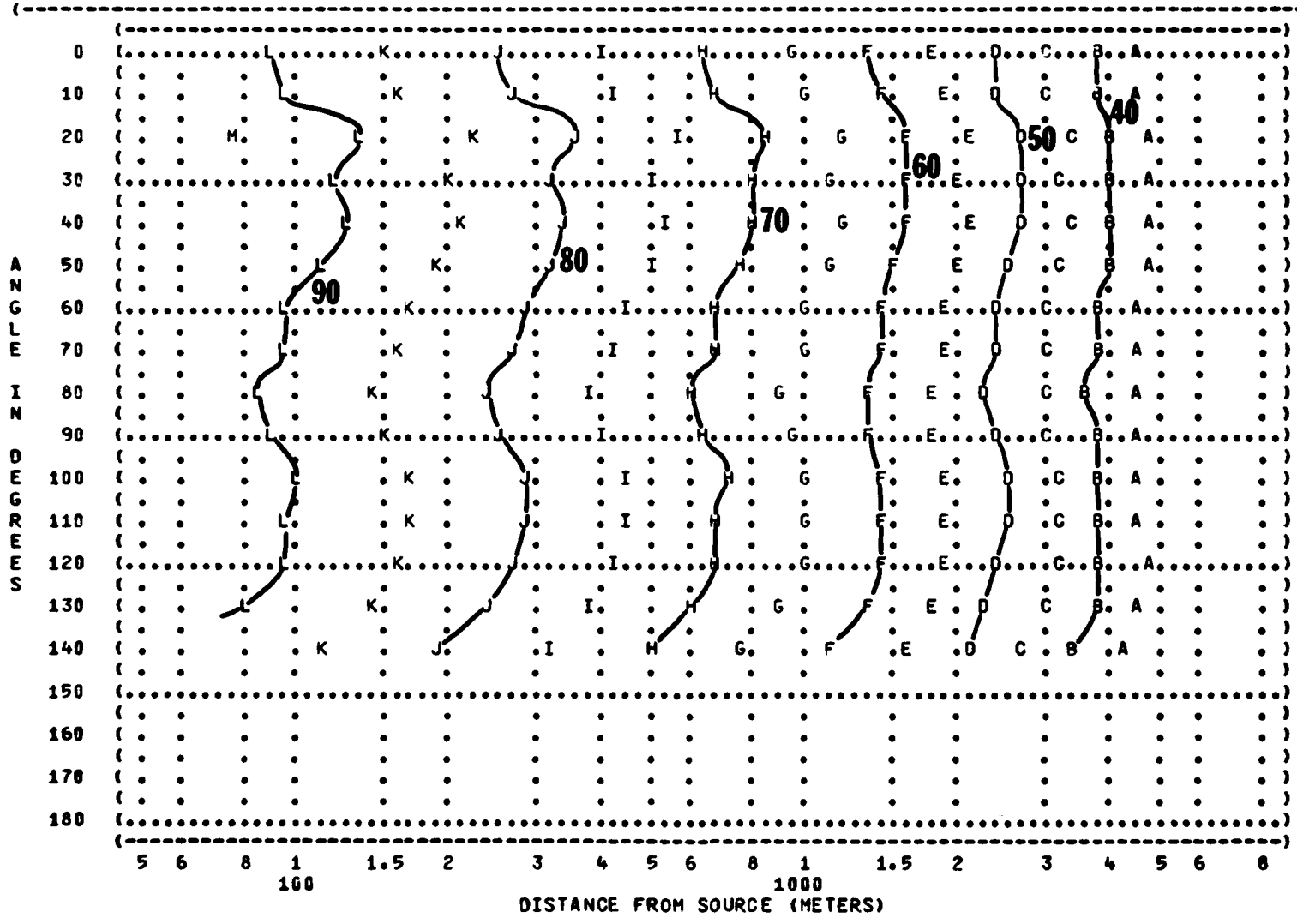
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 02 18 SEP 78 PAGE 23

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

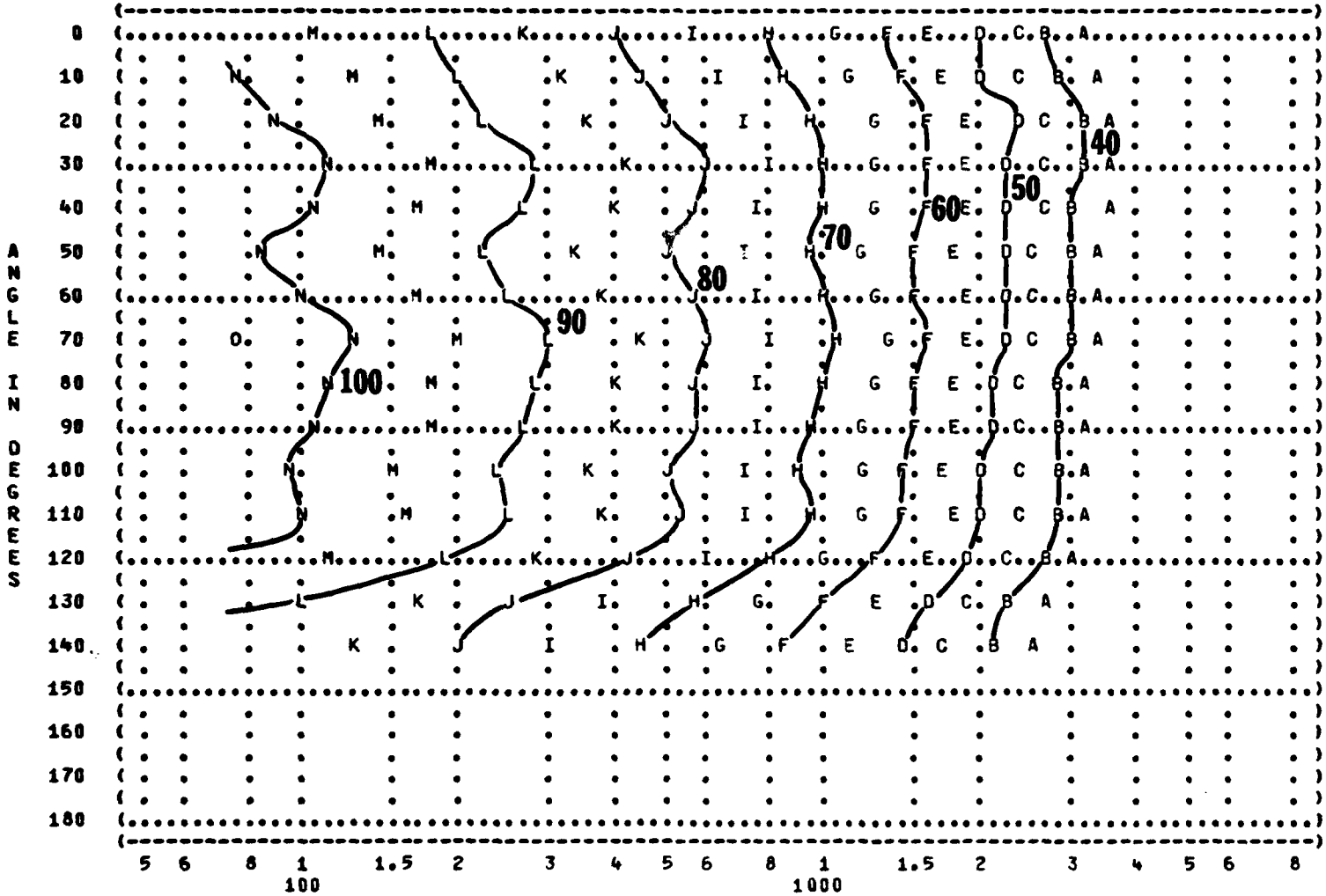
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 02 18 SEP 78 PAGE 24

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105

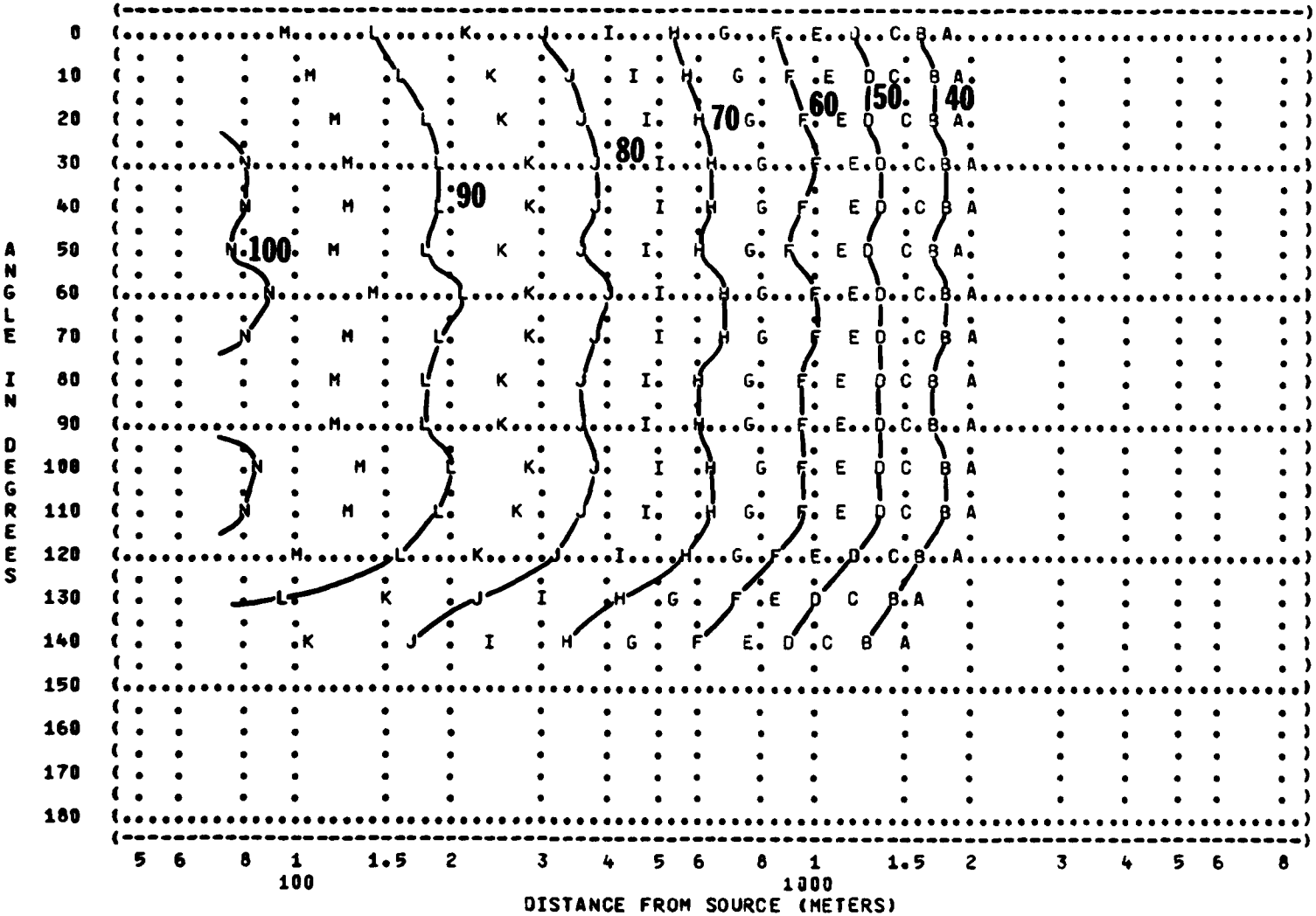
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 02
18 SEP 78
PAGE 25

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

FIGURE 11: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
70% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-000-001
RUN 02
16 SEP 78
PAGE 26

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

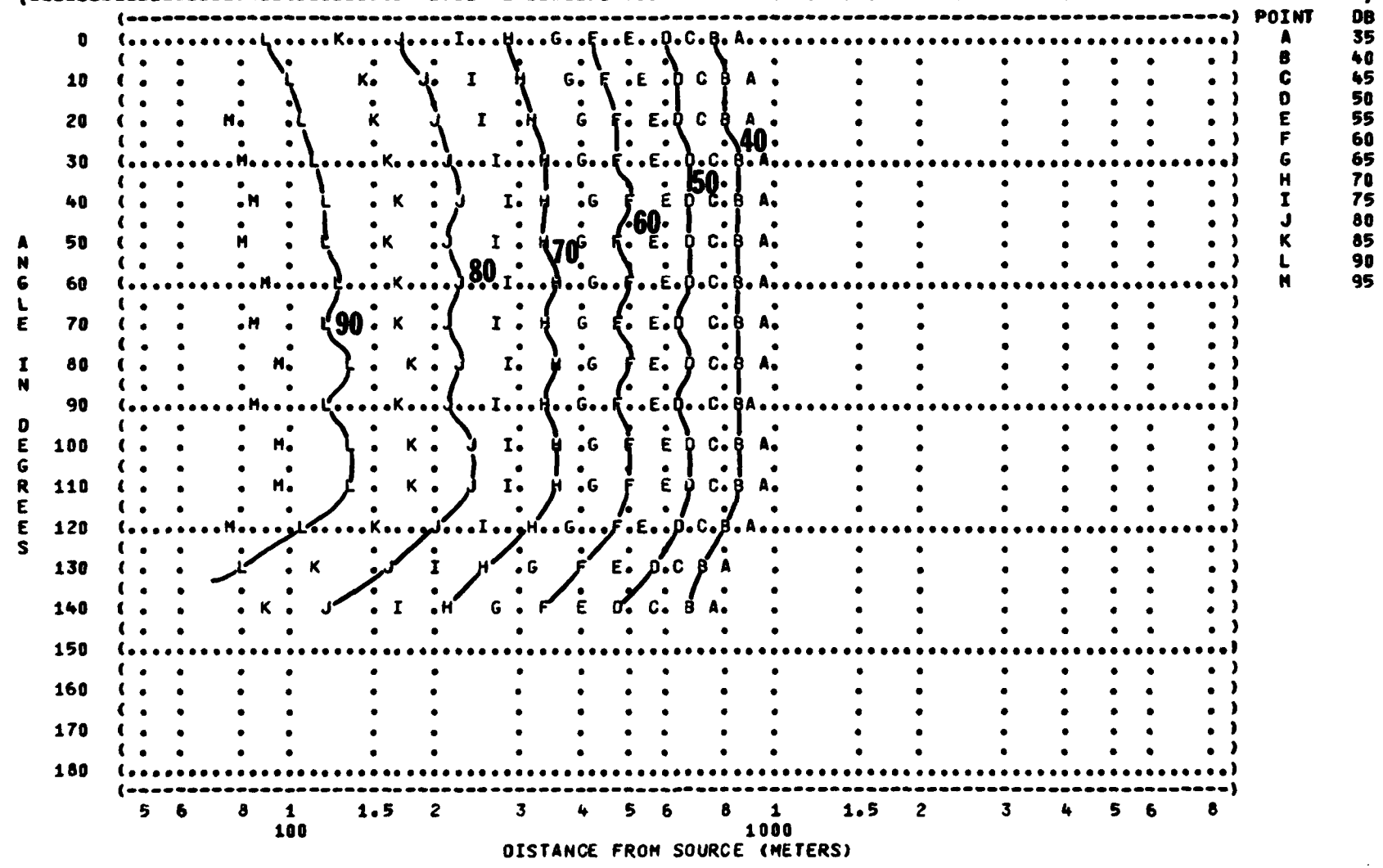


FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP ≈ 15 C
BAR PRESS ≈ .760 M HG
REL HUMID ≈ 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 18

POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100

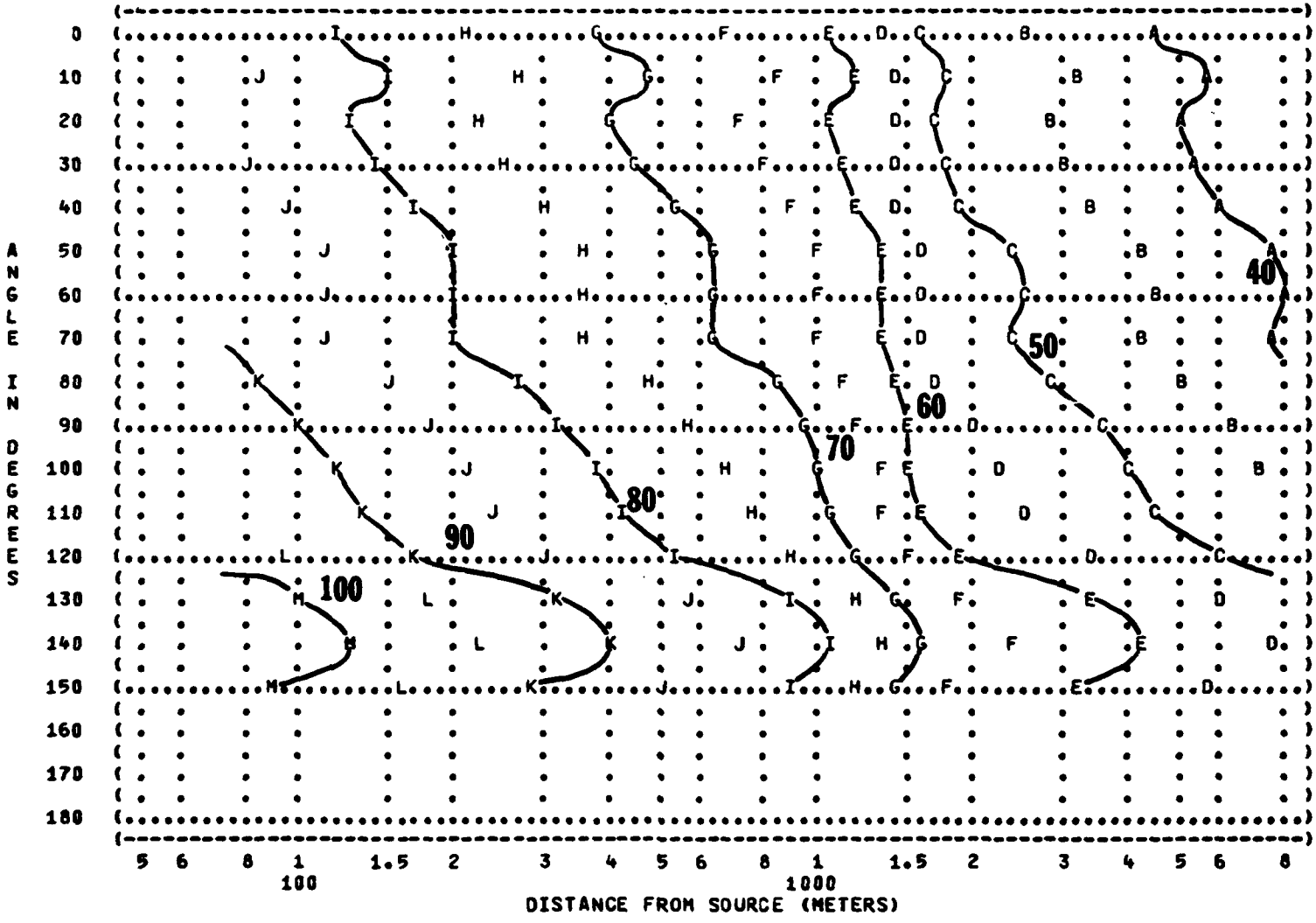


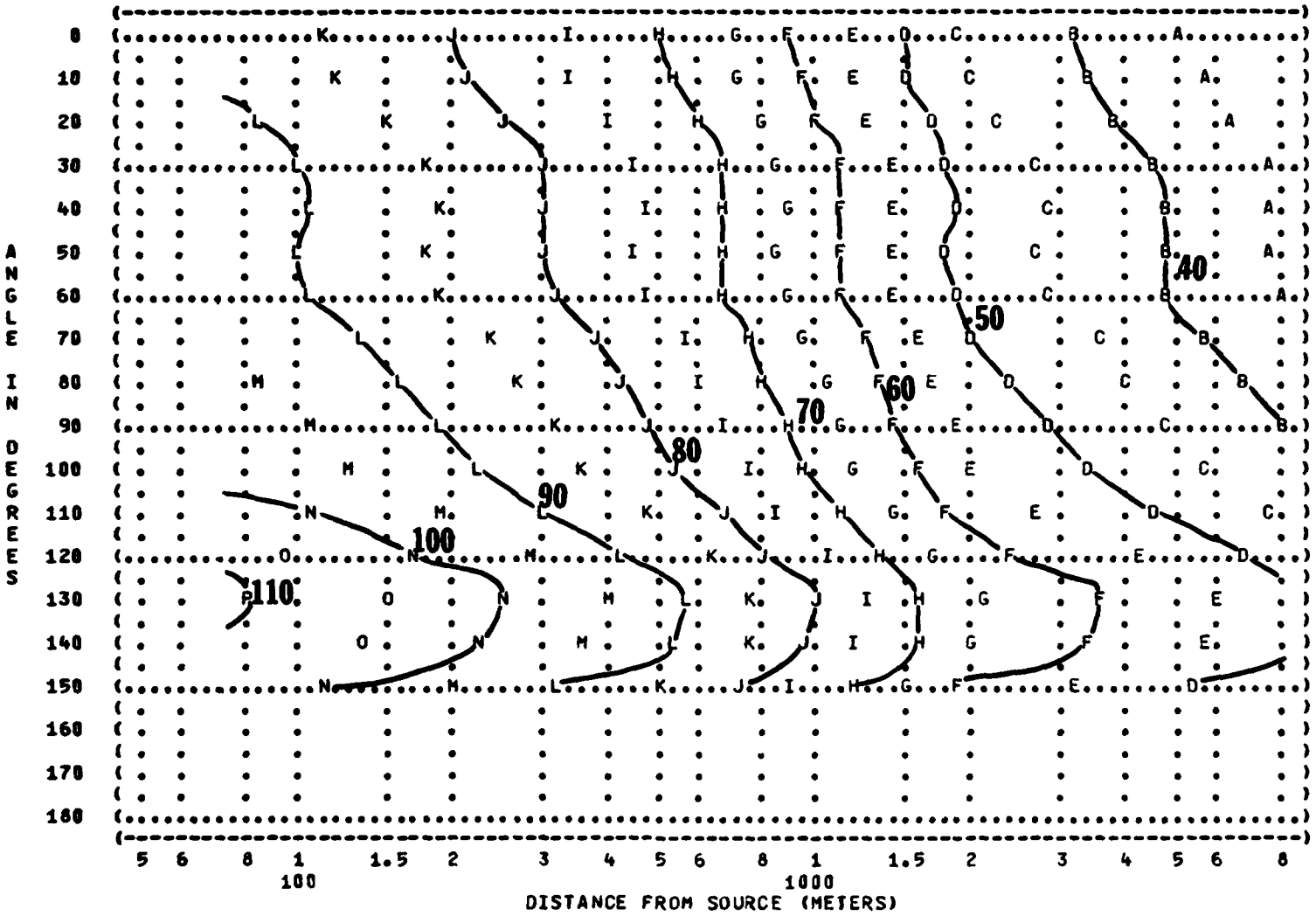
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 19



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

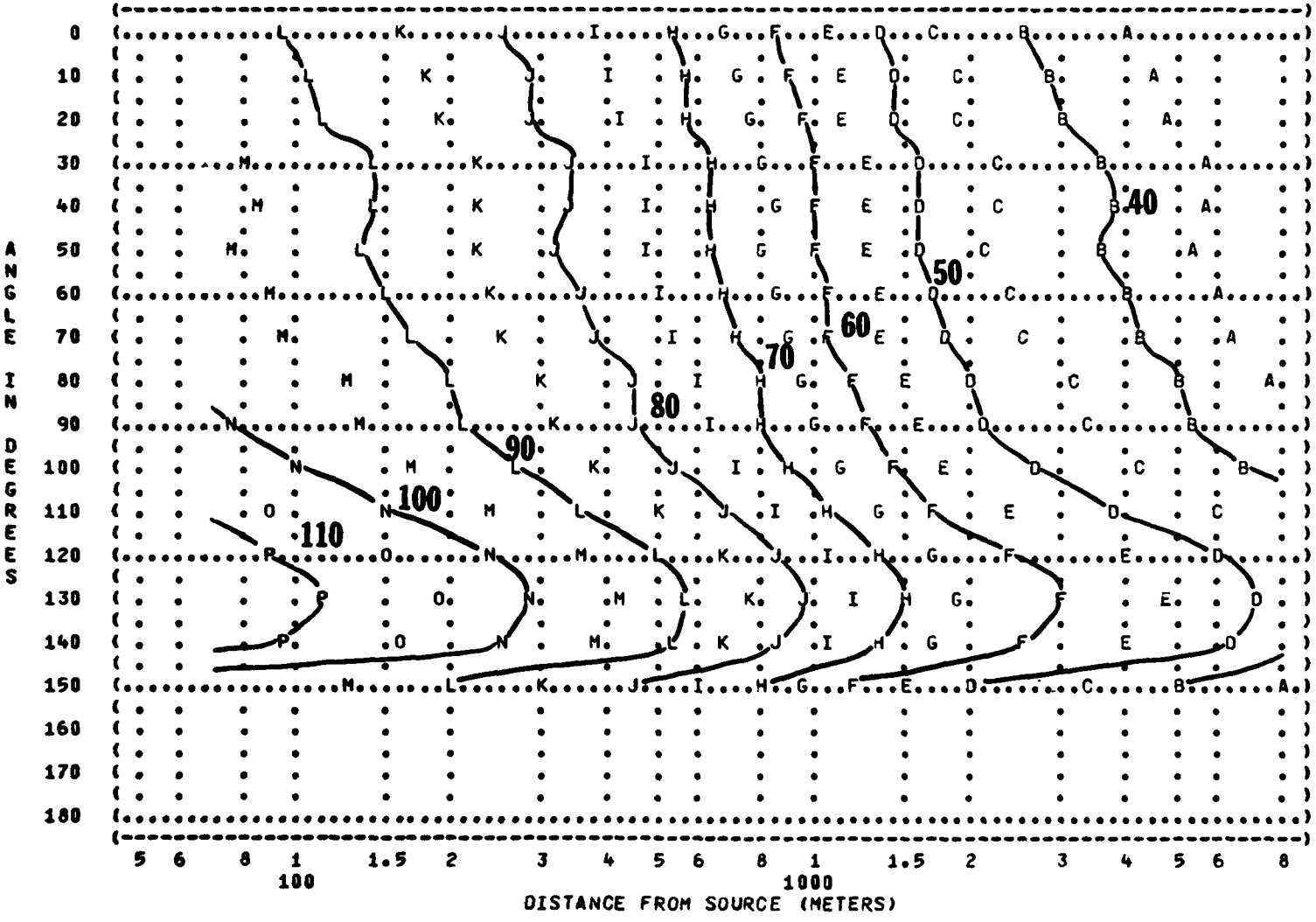
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 20



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

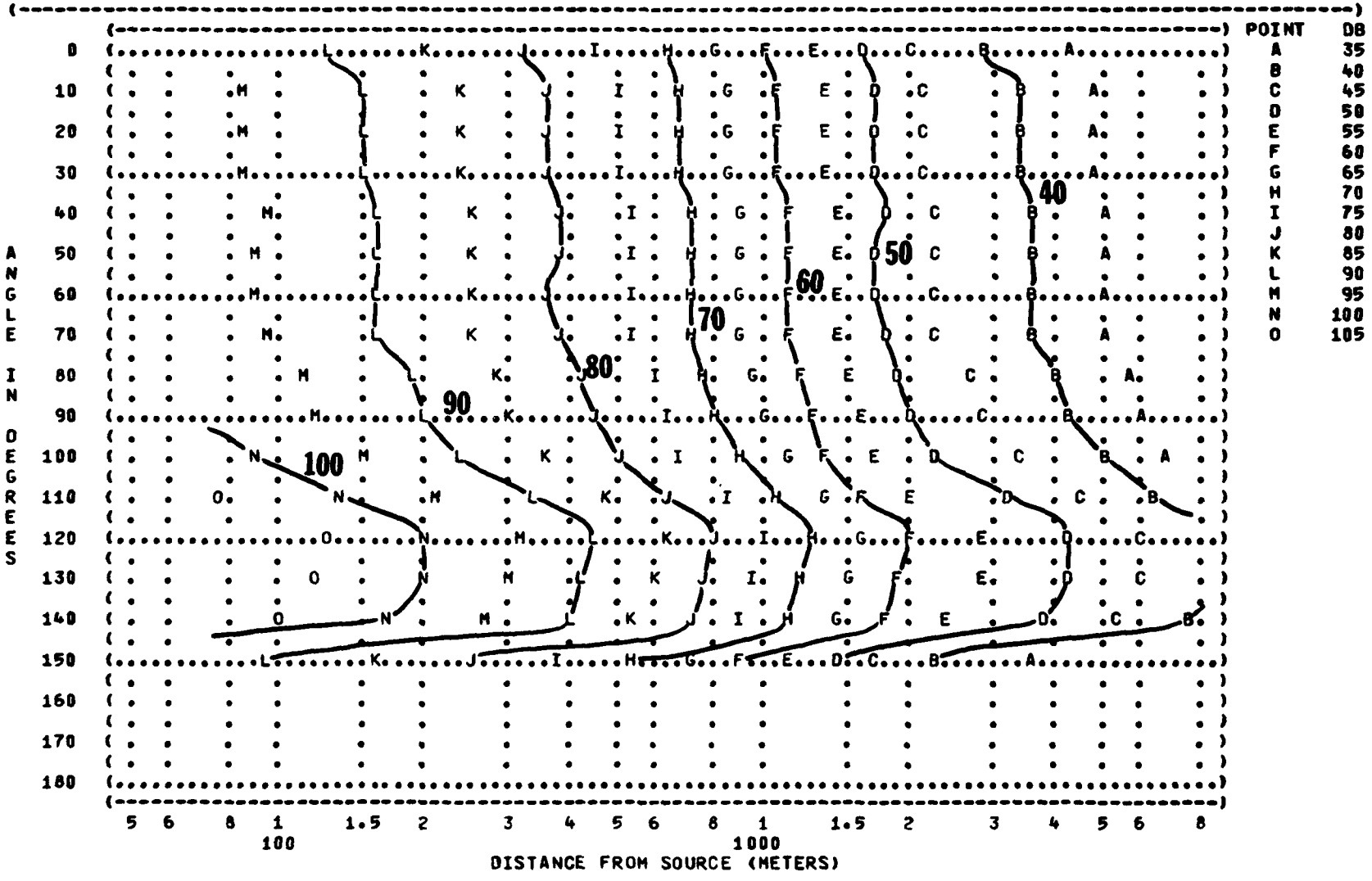
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-081
RUN 83
18 SEP 78
PAGE 21

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105

FIGURE: 11

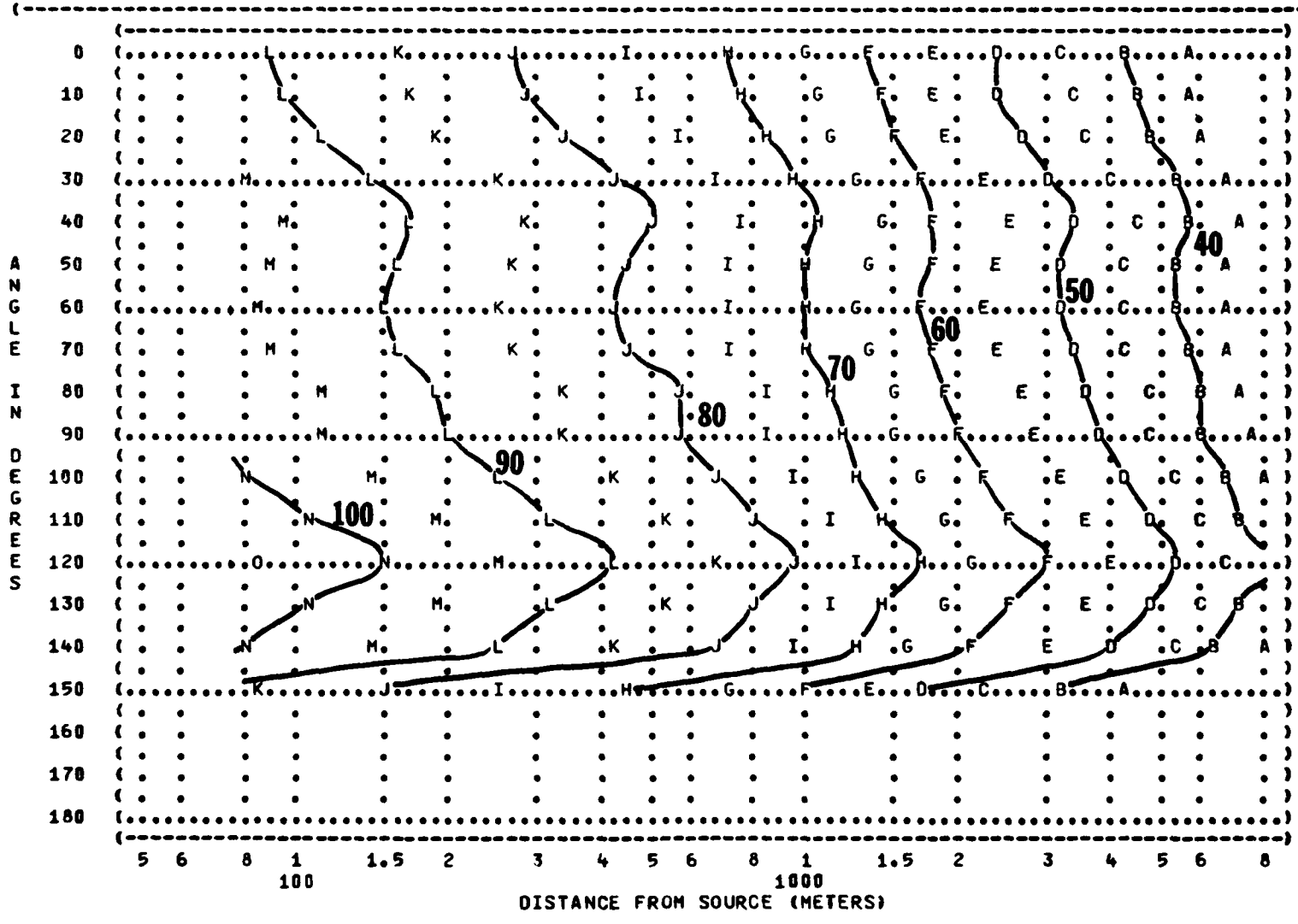
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
24 JAN 79
PAGE 22



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105

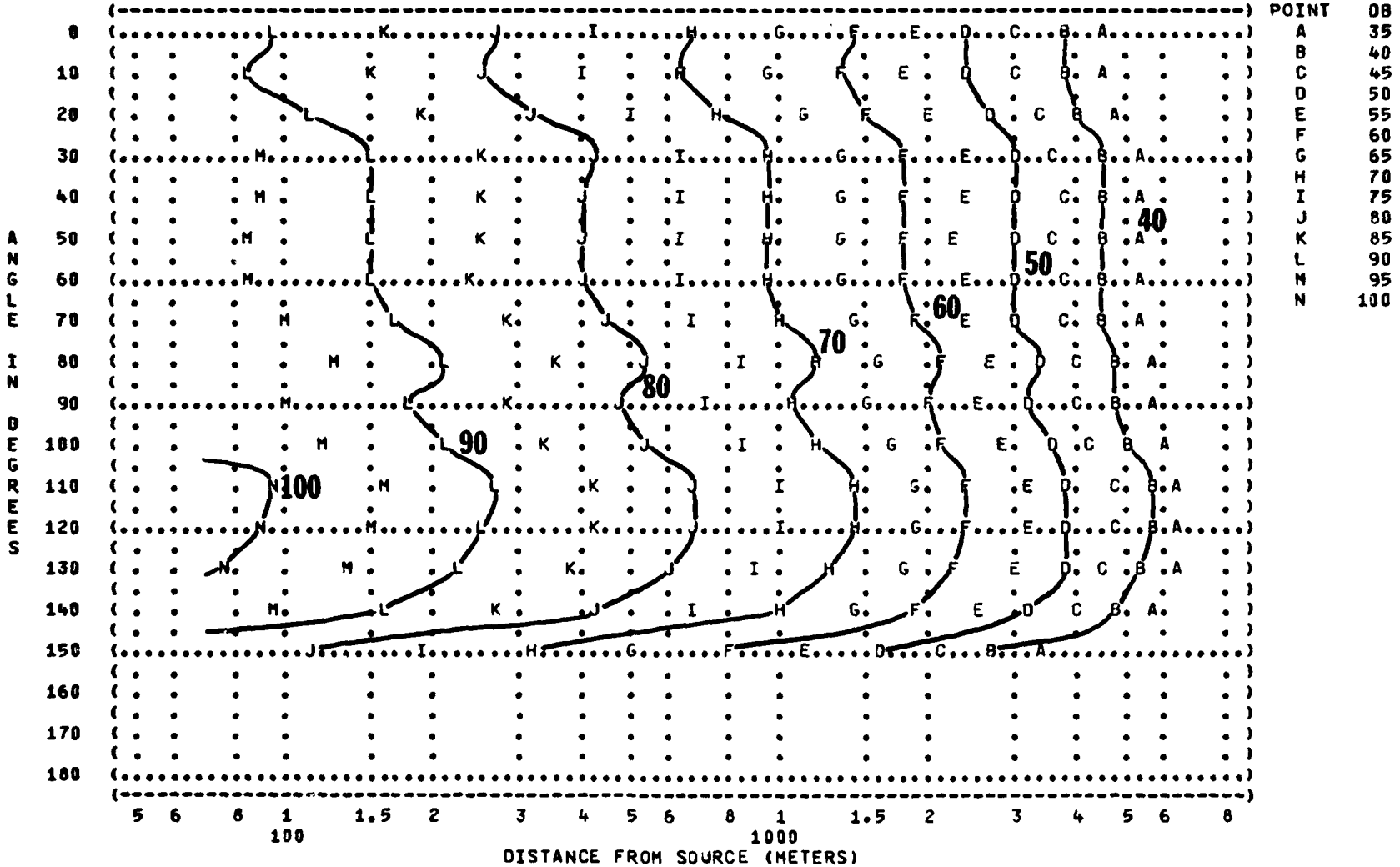
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 03
18 SEP 78
PAGE 23



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

AD-A082 653 AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OH F/G 1/2
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 139. E-3A AIR--ETC(U)
AUG 79 R G POWELL
UNCLASSIFIED AMRL-TR-75-50-VOL-139 NL

END
DATE FILMED
5-80
DTIC

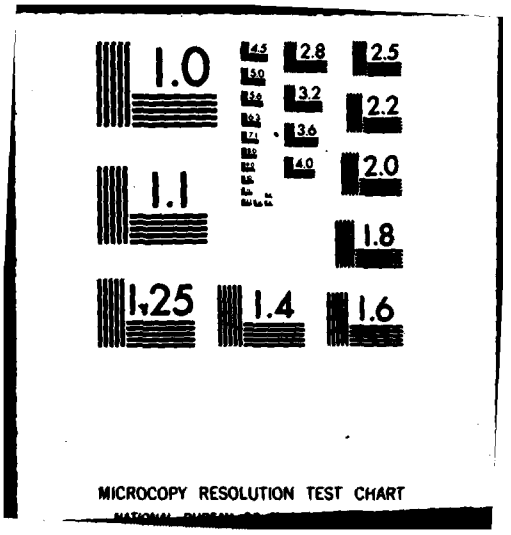

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
6.3
7.1
8.0
9.0
MICROCOPY RESOLUTION TEST CHART

FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 03 18 SEP 78 PAGE 24

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

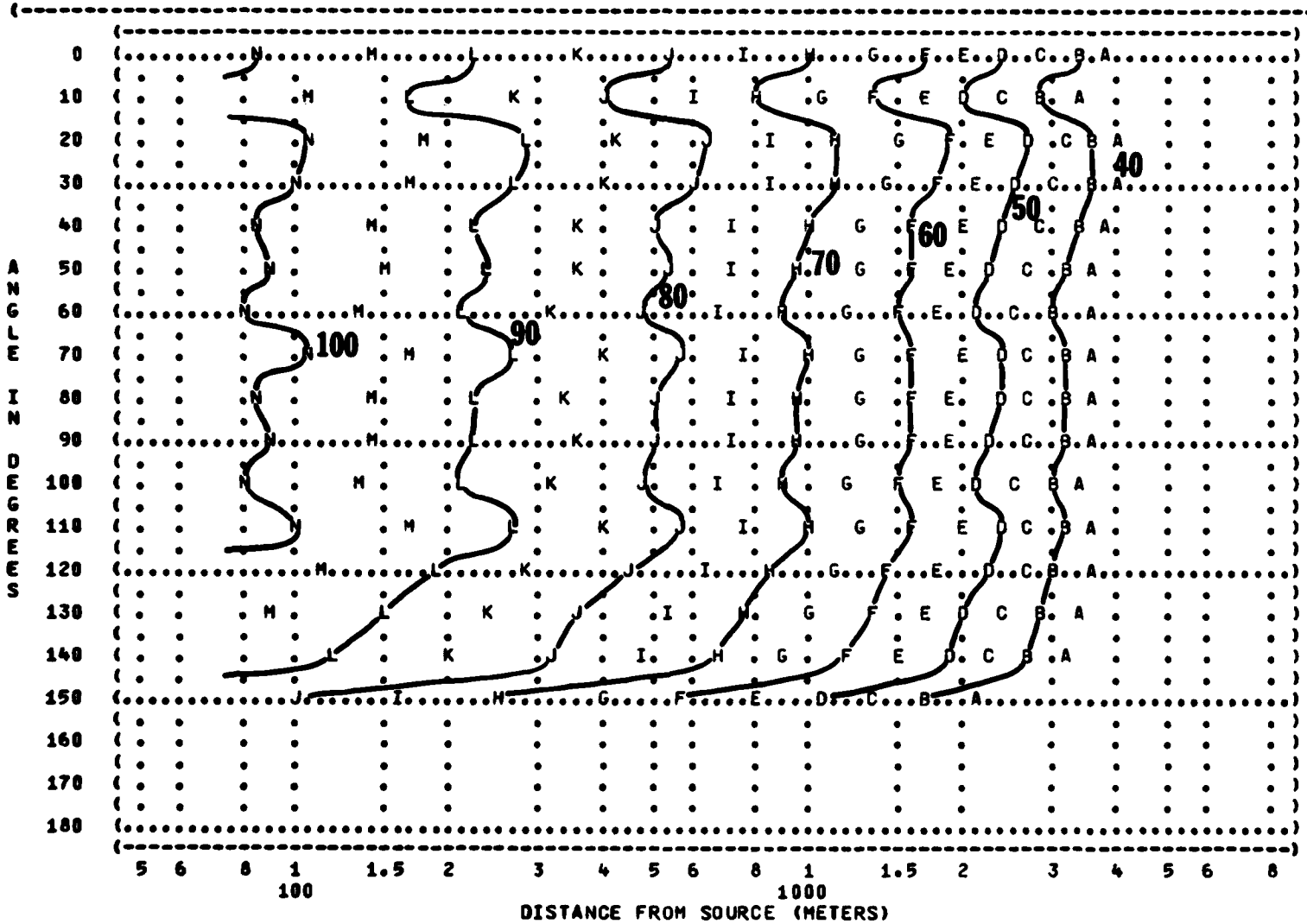


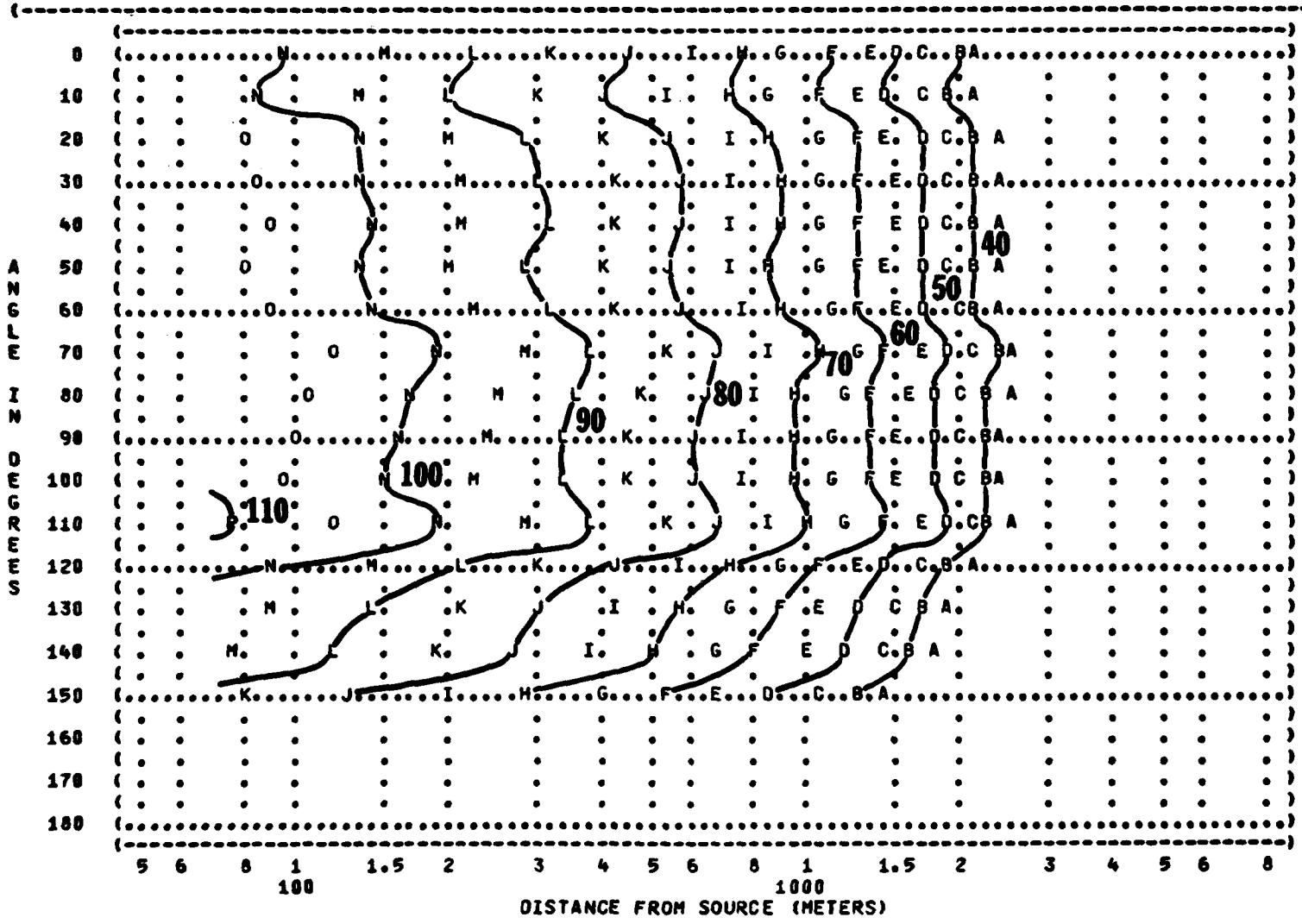
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-888-881
RUN 03
18 SEP 78
PAGE 25



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM ENGINE NO.2
IDLE, ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-081
RUN 03
18 SEP 78
PAGE 26

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

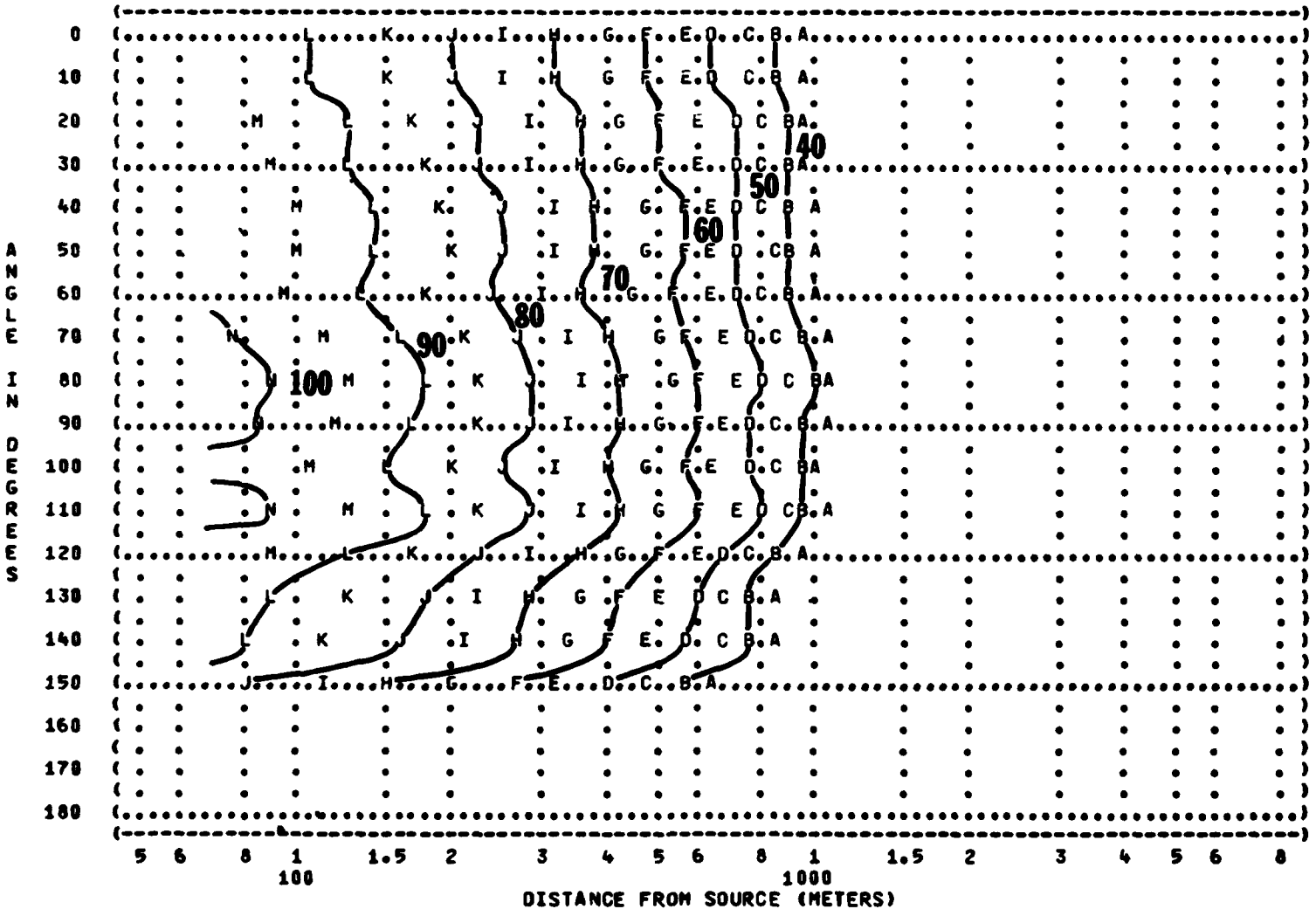


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
16 SEP 78
PAGE 16

POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100
N	105
O	110

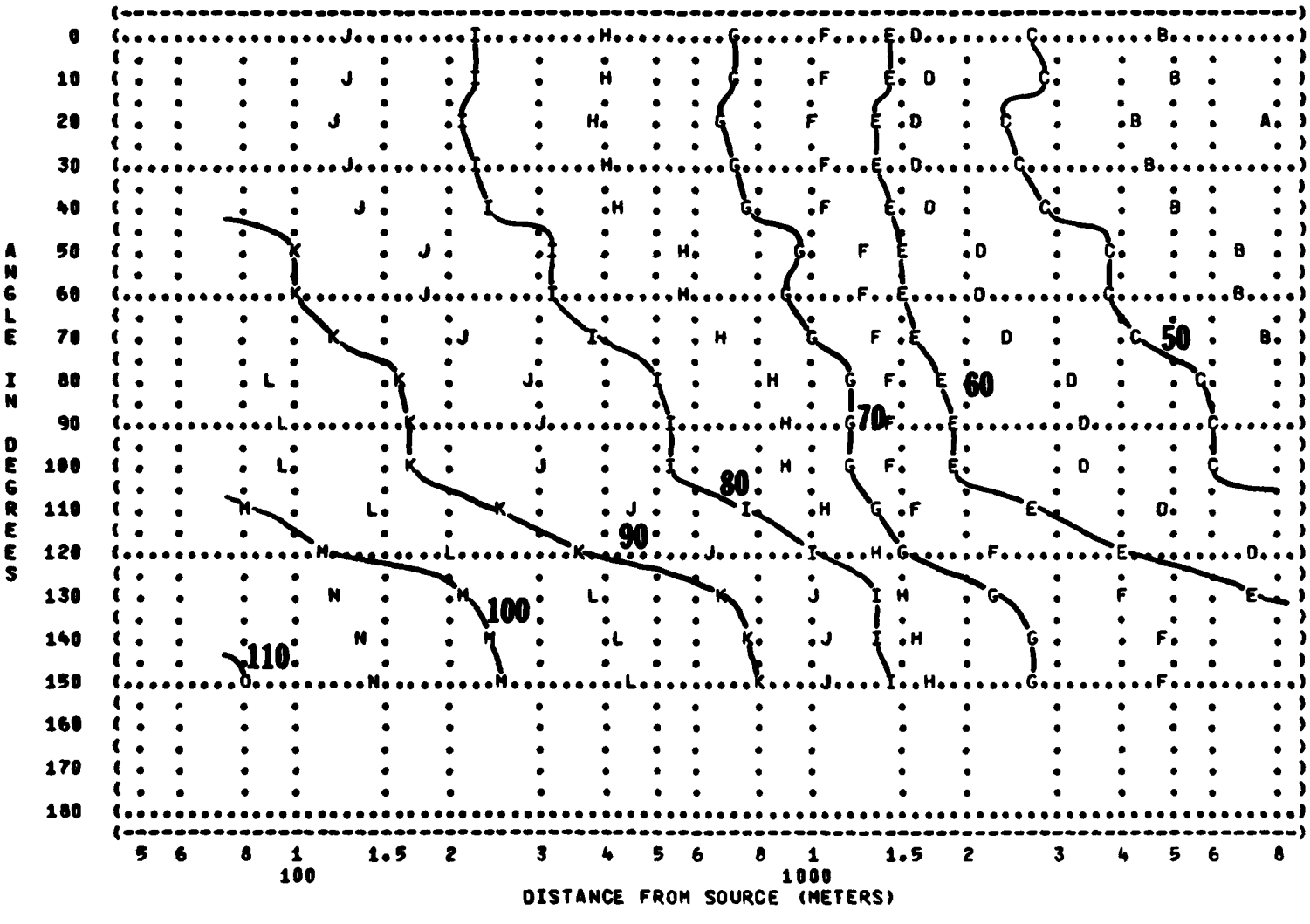


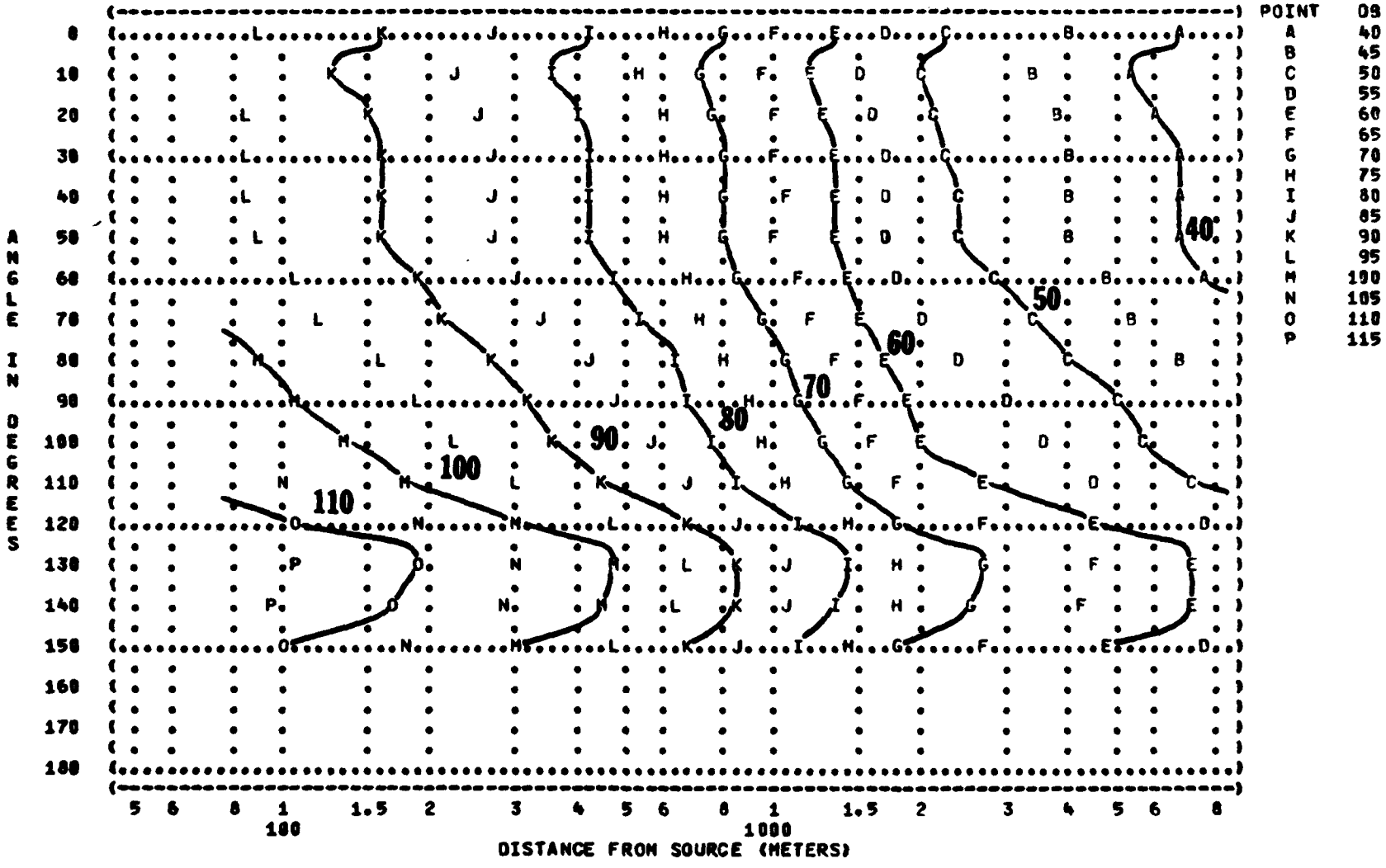
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 78-008-001 RUN 04 24 JAN 79 PAGE 19

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100
N	105
O	110
P	115

FIGURE: 11

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
ONEGA 1.4
TEST 78-888-881
RUN 84
18 SEP 78
PAGE 28

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

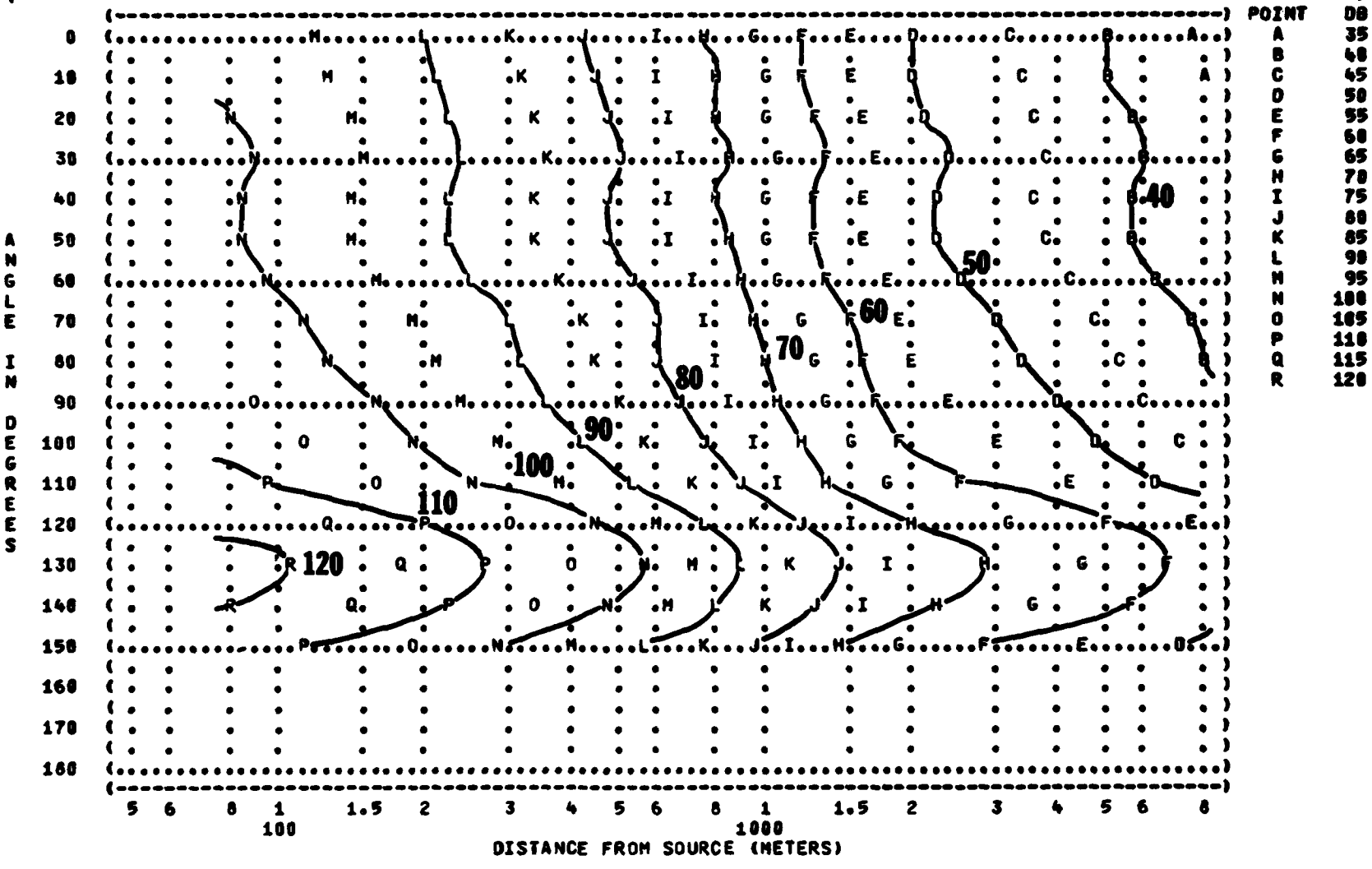


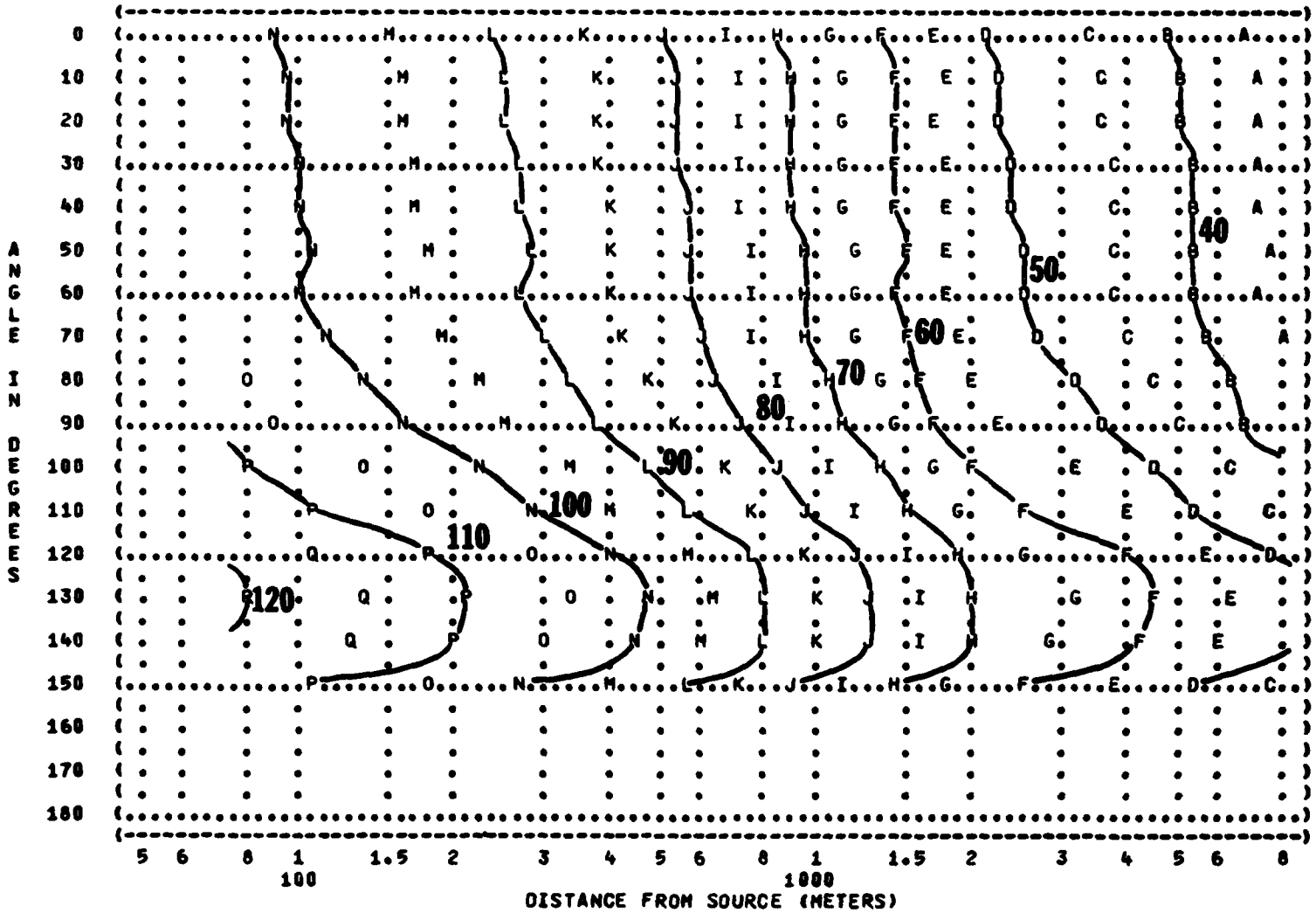
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 21



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

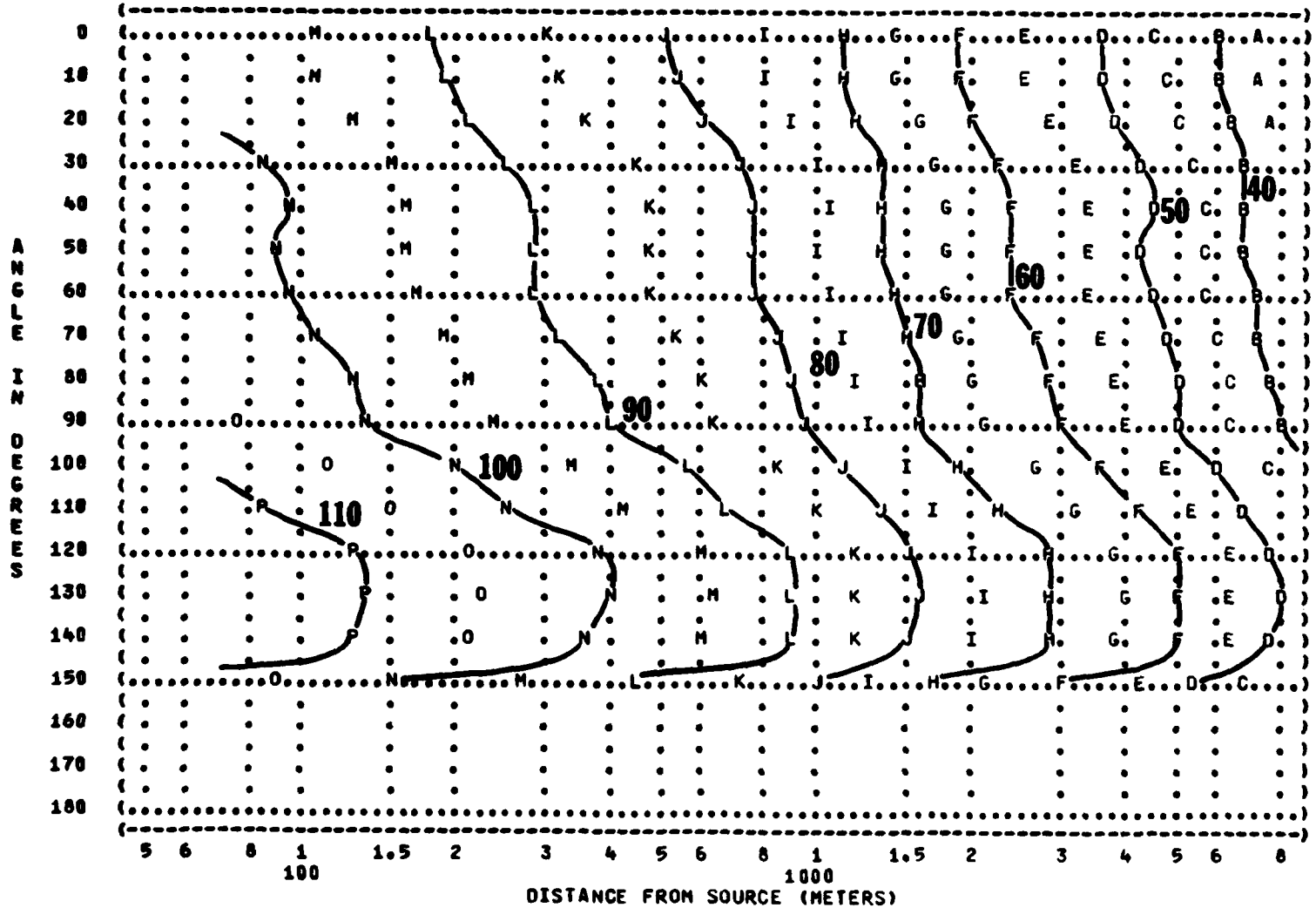
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-001
RUN 04
18 SEP 78
PAGE 22

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

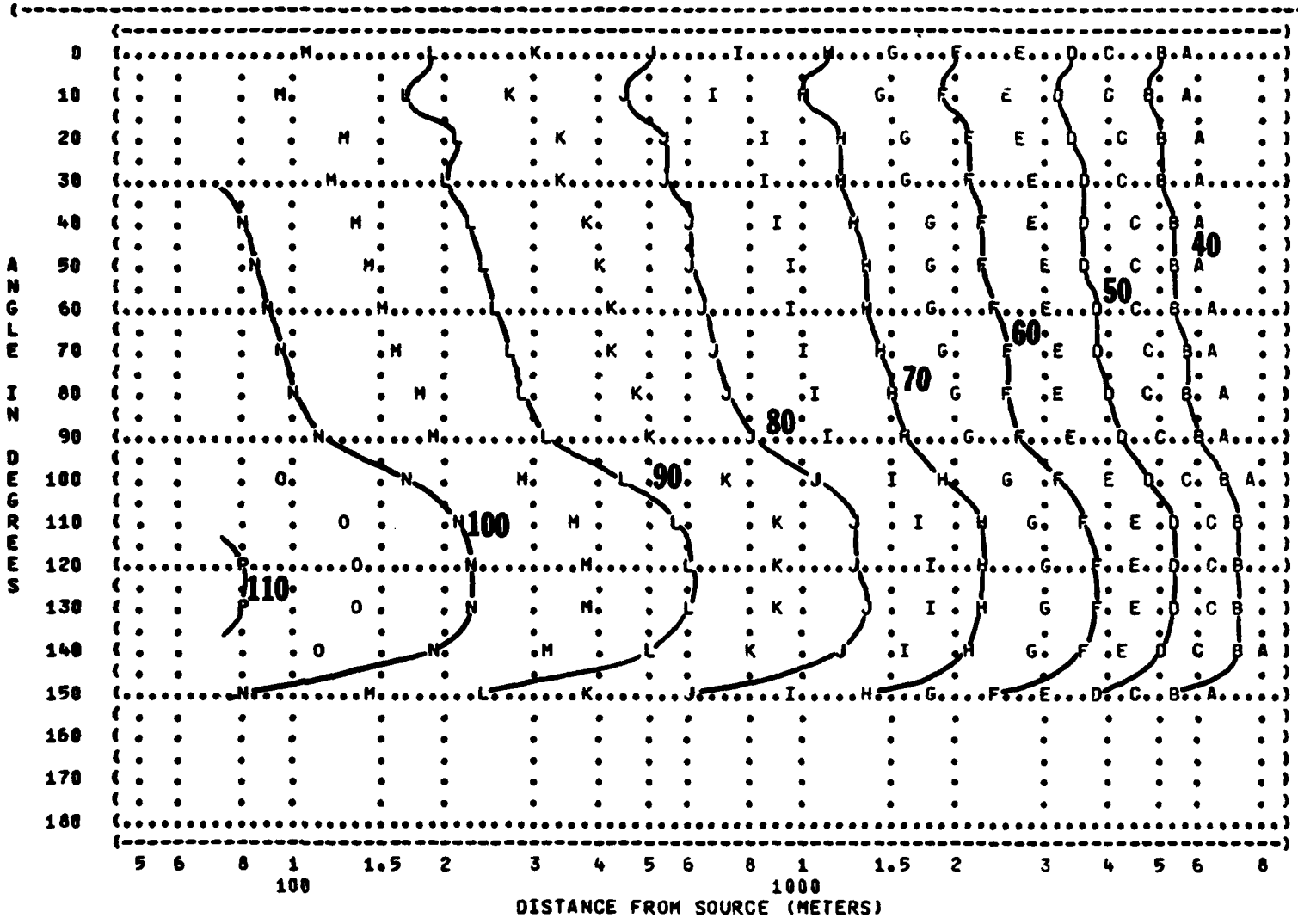
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (D3) 1000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 / TEST 78-008-001 / RUN 04 / 18 SEP 78 / PAGE 23

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

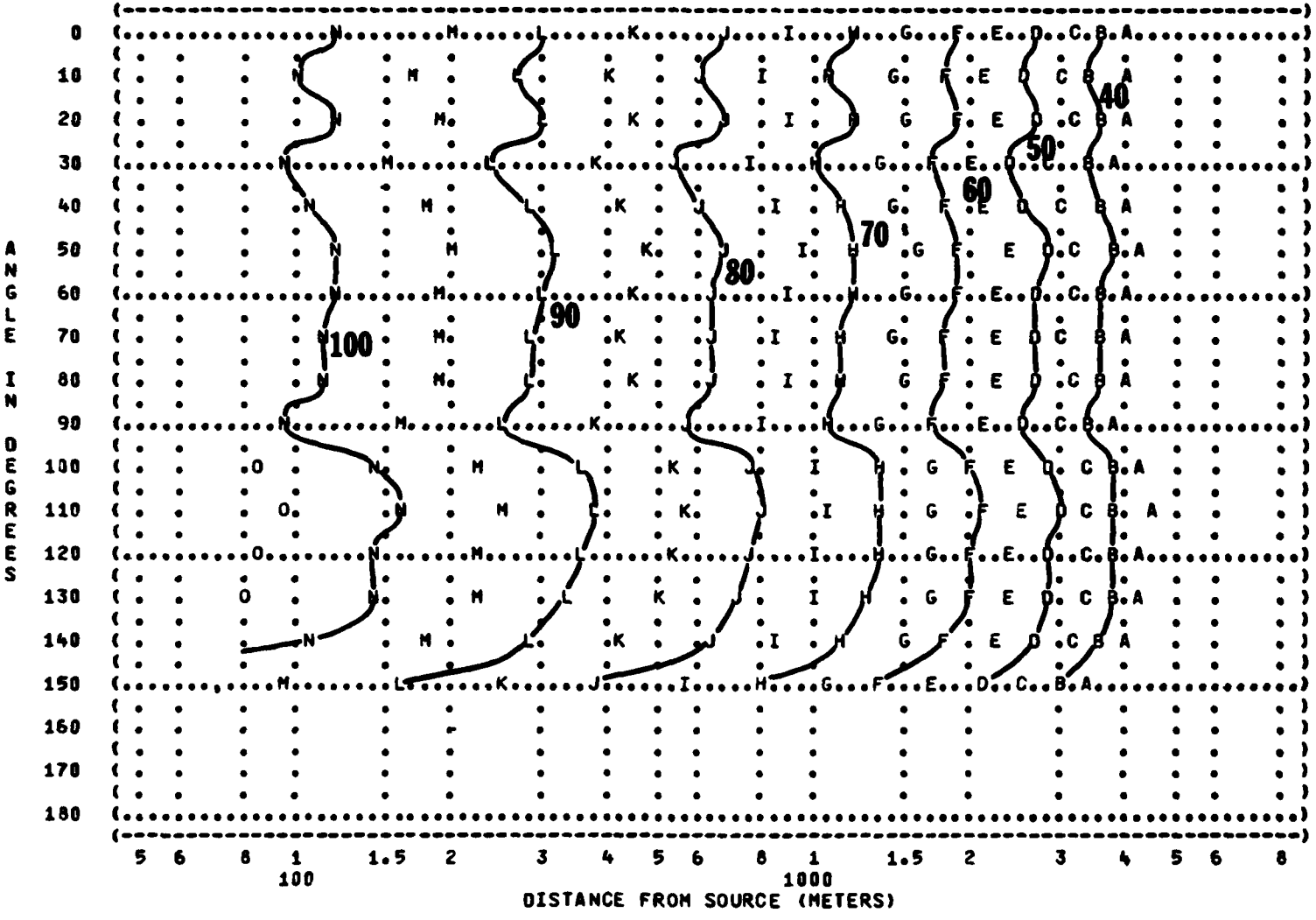
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-088-001
RUN 84
18 SEP 78
PAGE 24



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105

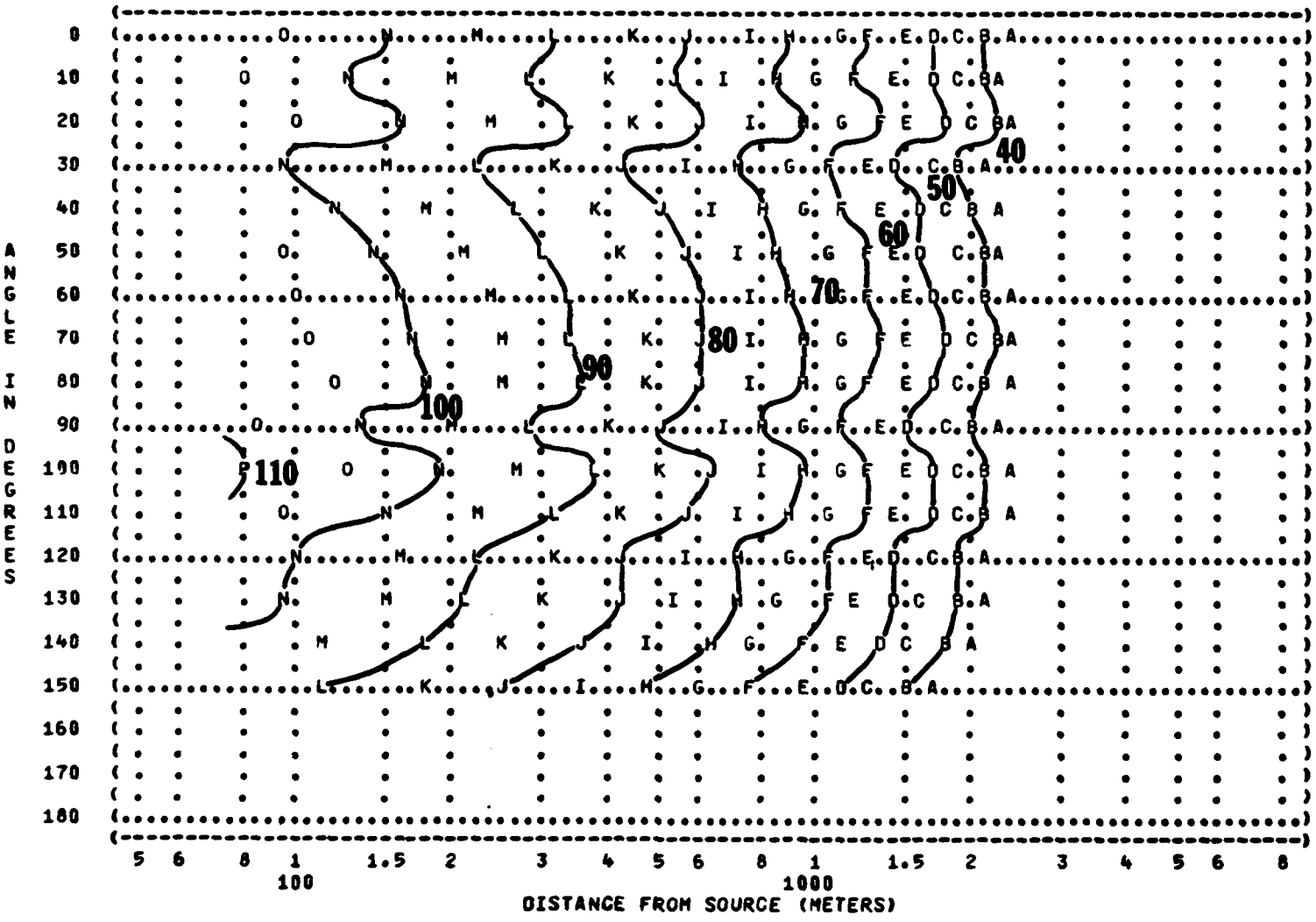
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 25

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110

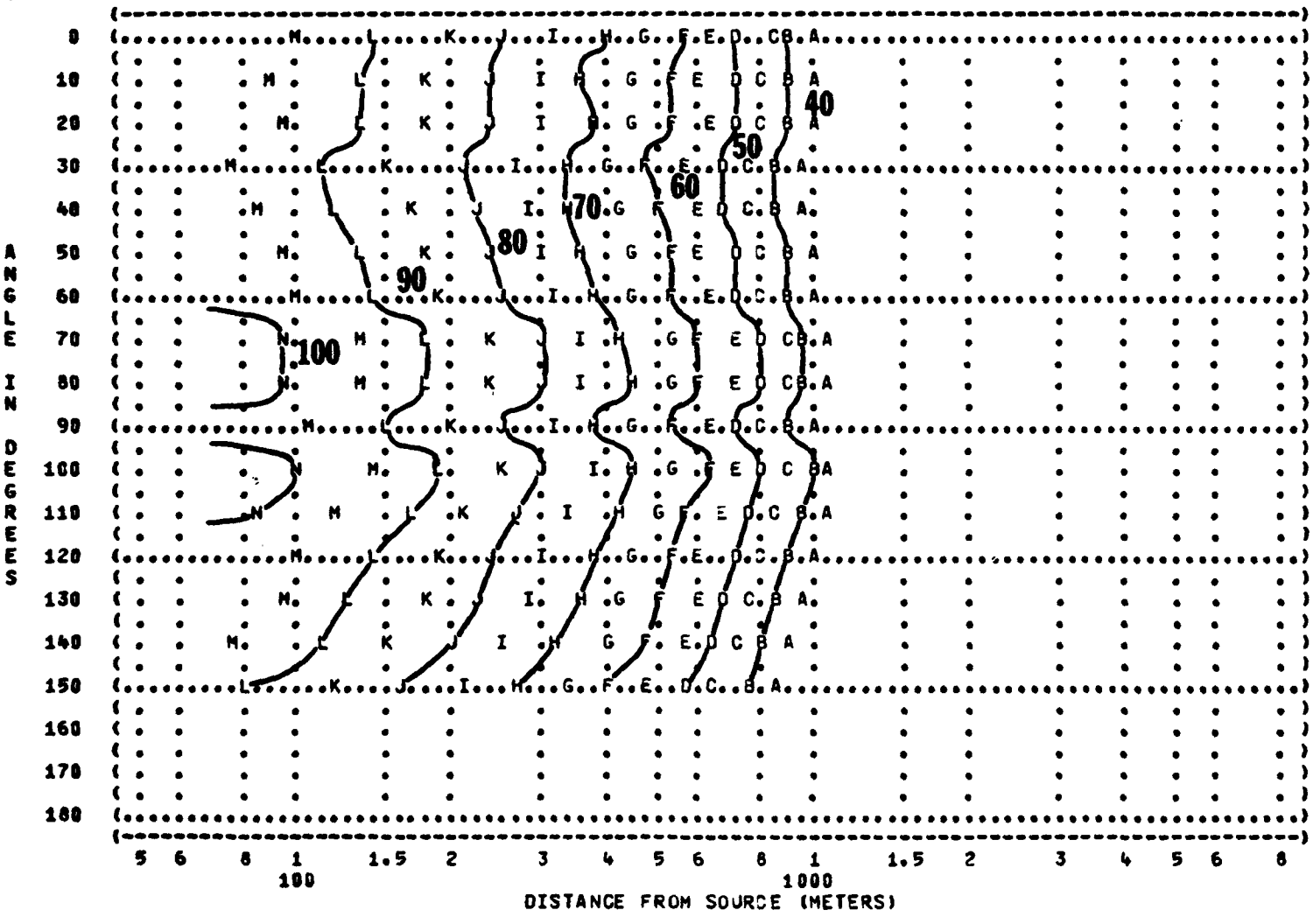
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
E-3A AIRCRAFT
TF33-P-100A ENGINE
FAR FIELD NOISE

OPERATION:
TRT ENGINE NO.2
85% RPM ENGINE NO.3
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 78-008-001
RUN 04
18 SEP 78
PAGE 26



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100